

XVII. AN ANNOTATED CATALOGUE OF SHELLS OF THE
GENUS *PARTULA* IN THE HARTMAN COLLECTION
BELONGING TO THE CARNEGIE MUSEUM.

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The conchological collection of the late Dr. William T. Hartman, recently acquired by the Carnegie Museum, contains about 9,000 named species. Its greatest treasure is the magnificent series of the genus *Partula*, probably the richest in the world. This embraces 83 species which Dr. Hartman considered valid, besides some 50 named forms and many unnamed ones, which he regarded as varieties, and about 20 hybrids; the whole represented by 240 suites, and 1,647 specimens, almost invariably in fine condition. Nearly all the types of Dr. Hartman's own description are with the collection; many others from the Pease and Garrett collections are authentic examples; a number were compared with the types in Europe. Of the species described up to the time of Dr. Hartman's death, 21 are unrepresented, but nearly all of these are still known from single examples, or are altogether lost or doubtful.

The specimens, like all the shells in the Hartman collection, are mounted on tablets. Besides the labels on the face of the tablets there are frequently notes, of greater or less importance, on the back; sometimes the original label is pasted to the card; and in a number of instances the shells are accompanied by photographs. There are also several mounted photographs of types etc. which are not now in the collection, some photographic negatives, and nine water-color drawings, by E. A. Smith, of types in the British Museum.

With the collection are several packages of letters from conchologists and collectors in various parts of the world; these often contain notes of great interest. As far as the genus *Partula* is concerned the most important are those from Mr. Andrew Garrett, of Huaheine, Society Islands. Mr. Garrett was an excellent naturalist as well as an enthusiastic collector. During the greater part of his active life he resided in Polynesia, visiting all the principal islands and eventually settling at Huaheine. He published many excellent scientific papers, including three on the shells of the Society, Samoan, and Fiji Islands. His

own conchological collection was especially rich in species from that region ; and it is impossible to read his letters without being impressed by his love for accuracy in every detail. Nearly all the *Partulas* in the Pease collection were collected by Mr. Garrett, and he gave them provisional names which Pease generally adopted. As Mr. Garrett retained labeled sets of most of the Peasean species, his opinion in doubtful cases is of prime importance. This is especially the case since Mr. Pease was rather careless in labeling shells and recording localities. Many of the habitats attributed to Polynesian shells in his catalogue, published in 1871, are erroneous. Mr. Garrett, on the contrary, was rigidly careful in noting localities ; he kept a daily journal, and was in the habit of noting the discovery of every fresh species of shell, with the provisional name.

Dr. Hartman's correspondence with Mr. Garrett was carried on during many years, and was singularly open and friendly. They exchanged shells constantly, and often sent specimens to each other for comparison. Though both were publishing papers which, to some extent, dealt with the same subjects, there was no shade of the jealousy which is too common in such cases. Each respected the opinions of the other ; each modified his views more or less as he was influenced by the other, until they were almost completely in accord. Up to the time of Garrett's death they had disagreed respecting a number of doubtful species ; but it is noteworthy that Dr. Hartman's last (MS.) revision of *Partula* concedes nearly every one of these points. Probably he was right in this ; the naturalist who has collected and observed thousands of specimens in the field gains an insight that can be obtained in no other way. Most of the Garrett correspondence was preserved.

Among the Garrett letters there is a MS. catalogue of *Partula*, undated, but apparently written about 1881 ; this appears so important that it is published at the end of this paper, together with some extracts of general interest from the letters.

Mr. E. L. Layard, British Consul in the New Hebrides, and an enthusiastic conchologist, is the principal authority for localities in that region. Unfortunately the Layard correspondence is incomplete. Many of the letters related in part to the disease (cancer) of which Mr. Layard subsequently died, and for which Dr. Hartman was prescribing ; these were destroyed. The remaining letters contain many notes of importance on the New Hebrides *Partulas*.

Dr. J. E. Cox and Mr. John Brazier, both of Sidney, Australia, are represented by a few letters. Mr. Brazier sent a number of Partulas to Dr. Hartman, as he had earlier to Pease. Unfortunately, his records of localities are not always beyond doubt. Dr. Cox sent the whole of his Partulas to Dr. Hartman for examination, and permitted him to retain some of them. In the correspondence there are two sheets of memoranda on Partula, by Dr. Cox, written about 1882: some of the notes are important. Dr. Cox exchanged shells with Mr. Garrett and Mr. Layard; his earlier correspondence with Dr. Hartman was carried on through Garrett, who forwarded exchanges.

When Dr. Hartman began his special study of Partula, about 1877, the genus was in a condition of almost hopeless confusion. Cuming's species, described by Pfeiffer and others, were assigned to islands often thousands of miles from their true habitats, and in some cases it really seemed as if the errors were intentional. Pease was generally correct in his discrimination of species and varieties, but very careless about localities: many of his MS. names were supposed to indicate valid species, though he had never intended them to be more than provisional or the marks of varieties. Carpenter, who examined a series of the Pease duplicates, referred them to other species, and almost always erroneously. Scores of varieties had been described as species; many species were regarded as varieties: hybrids and decorticated shells were described as species: known species were erroneously recorded from different islands, and described as new by naturalists who regarded the habitat as a sufficient proof of validity. Even reference to type specimens was not always conclusive; in more than one instance the original type had been replaced by a shell of another species.

Dr. Hartman's writings on the genus Partula were published at intervals, from 1881 to 1893, and embrace the following papers:

Description of a Partula, supposed to be new, from the Island of Moorca. Proc. Acad. Nat. Sci., Phila., p. 229, 1880.

A catalogue of the Genus Partula Fér. (printed for private distribution). West Chester, 1881.

Observations on the species of the Genus Partula Fér., with a Bibliographical Catalogue of all the species. Bull. Mus. Comp. Zool., IX, No. 5, pp. 171-190, 1882.

Observations on the duplicates of the Genus Partula Fér. contained in the Museum of Comparative Zoölogy, Cambridge, Mass., formerly

belonging to the collection of the late Wm. H. Pease. Bull. Mus. Comp. Zoöl., IX, pp. 91-96, 1882.

Descriptions of New Species of Partula and a Synonymic Catalogue of the genus. Proc. Acad. Nat. Sc. Phila., pp. 203-223, 1885.

New Species of Partula from the New Hebrides and Solomon Islands. Proc. Acad. Nat. Sc. Phila., pp. 30-35, Plate II, 1886.

New Species of Shells from the New Hebrides and Sandwich Islands. Proc. Acad. Nat. Sc. Phila., p. 250, Plate XIII, 1888 (includes several Partulas).

Descriptions of New Species of Shells. Proc. Acad. Nat. Sc. Phila., pp. 284-288, plate III, 1890 (includes a species of Partula).

Catalogue of the Genus Partula, "The Nautilus," vol. VI, pp. 73 and 97, 1892-93.

Through the courtesy of Mr. H. A. Pilsbry, of the Academy of Natural Science, Philadelphia, I have been permitted to examine a MS. work by Dr. Hartman, containing the final results of his studies of Partula, and revised to within a short time of his death. This was originally intended to be a monograph of the genus, but to some extent it is incomplete. In it he corrects errors in his previous writings, reconsiders a number of doubtful species, and gives descriptions of most of the valid ones.

Dr. Hartman visited Europe in 1883 and personally examined a number of types in London and Paris, besides adding largely to his collection. He had free access to type specimens from the Pease collection in the Academy of Natural Science, and the collections, made by the United States Exploring Expedition, in the Smithsonian Institution, as well as the Pease duplicates, which he studied in the Museum of Comparative Zoölogy.

The result of his labors was to bring something like order out of the tangled mass, and for this he deserves the everlasting gratitude of conchologists. But there are still many doubtful points.

The main object of the following catalogue is to smooth the way for future monographers of the genus. I have rigidly abstained from expressing opinions, and have made only a few suggestions. In the case of doubtful species or habitats, scraps of information are often important, and a great number of these have been gleaned from the letters of Mr. Garrett and others. No doubt many of the extracts will be useless; but it was not always possible to judge of their value, and I have thought it better to preserve every extract which seemed to throw the

slightest light on the subject. The labels and the notes on the reverse side of the tablets have been given verbatim; the only liberty I have taken has been in the use of capital letters, and in correcting some trifling orthographical errors. My own notes merely call attention to doubtful points, indicate varieties, explain synonyms and fix, or endeavor to fix, the position of the small islands mentioned.

The arrangement is that of Dr. Hartman's MS. Catalogue, which is of later date than any of his published works. Species not represented in the collection are noted in their proper places; all hybrids are thrown together. The photographs and drawings are catalogued last.

The numbers are those of the Carnegie Museum Conchological Collection. Each species which Dr. Hartman regarded as valid is indicated by leaded type; the varieties and synonyms following it are in italics. Labels and extracts from letters or printed papers are in quotation marks.

In his earlier labels Dr. Hartman often used the word "type" to indicate specimens which agree with the original description or example. In many cases he has changed the word to "typical," but some of the labels have never been corrected. In the case of many shells from the Pease and Garrett collections "type" really means "authentic example." In most instances it would be impossible to identify the original Pease types, and perhaps the Hartman examples have as good a claim as any. I have, however, inserted the word *typical*, *H. H. S.* in parenthesis after "type," wherever the latter has been used for any shell except the one originally described and figured.

4093. "**Partula faba** Martyn, Raiatea." On the back of the card is written: "Martyn's type with the label of Pease." The name and locality, in Pease's handwriting, are on a slip pasted to the card, and beside it is written: "Pease scrib." By "Martyn's type" must be understood typical examples. Five specimens. Three are pale olive except a narrow band at the suture and a broad one covering the lower part of the body whorl; the others are brown, darker below, one rather broad and the other unusually elongate for this species. One of the banded specimens is the original of the figure published in Dr. Hartman's "Catalogue of the Genus Partula," 1881, and in the "Nautilus," Nov., 1892, p. 74.

4094. "*Partula faba* Martyn, Raiatea." Five specimens, all with the sutural and basal bands, but the paler portions are obscured by oblique strigations.

4095. "*Partula faba* Martyn, Raiatea." Seven specimens, pale with oblique dark lines, and without the bands.

4096. "*Partula faba* Martyn, Raiatea." Ten specimens of a pale olive colored variety; two of these are darker around the umbilicus, one showing also the sutural band. In color they approach No. 4106 (var. *P. pallida* Pse. MS.), but the shell and aperture are broader.

4097. "*Partula faba* Martyn (variety), Raiatea, Coll. Pse." Eleven specimens, dark chestnut brown to olive brown, without bands and varying much in form and size.

4098. "*Partula faba* Martyn (abnormal), Raiatea." Seven more or less dwarfed and unsymmetrical examples.

4099. "*Partula subangulata* Pse. MS., Tahaa, Coll. Pse." Nine specimens. Six are castaneous to brown (one with an obscure darker band); one (somewhat immature) is pale with a broad dark band; two are albinos. This is *P. faba* var. *subangulata* Pse., Jour. de Conch., 1870, p. 401, and Proc. Zool. Soc., 1871, pp. 458, 473, Pl. 3, Fig. 79. Hartman, Proc. Acad. Nat. Sc. Phil., 1885, p. 206, etc. The banded example corresponds almost exactly to some of the specimens of the var. *P. amanda* Garr., No. 4101, also (according to Garrett) from Tahaa.

4100. "*Partula subangulata* Pse. MS., Raiatea, Coll. Smithsonian." Nine specimens. One is dark castaneous with a narrow pale sutural band; four are brown with more or less obvious oblique strigations; four are pale olive colored. Pease, Proc. Zool. Soc., 1871, p. 458, says that Raiatea is the metropolis of *P. faba* and that the var. *subangulata* is found (exclusively?) in Tahaa. Garrett, in his MS. Catalogue, gives the habitat as Tahaa.

4101. "*Partula amanda* Garr. MS., = *faba* var., Raiatea, ex auctore." On the back of the card is written: "This shell in A. N. S." (Academy of Natural Science, Philadelphia) "is labeled '*P. bella* ex auctore.' " Eleven specimens. The ground color varies from castaneous to pale olive brown and there is a broad encircling band, or two narrow bands, sometimes obscure, or a broad band with darker edges. One (smaller) example is almost wholly dark, with a narrow pale band at the suture, corresponding to the var. *marginata*, No. 4107. Another has a well developed parietal tooth. This is *Partula amanda* Garr., Journ. Acad. Nat. Sc. Phila., IX, p. 59, Pl. III, Fig. 78, and *P. bella* Pse. MS. (non *P. hebe* var. *bella* Pse. Proc.

Zoöl. Soc., 1871, p. 473). Mr. Garrett wrote to Dr. Hartman in 1880: "The *P. amanda* = *P. ventricosa* Pse., and as you say = *bella* Pse. *Ventricosa* was the name I gave the shell when I discovered it. Supposing Pease had abandoned the species I renamed it *amanda*, not being aware of Pease's MS. name *bella*, which precedes mine." *P. amanda* is included among the synonyms of *P. faba* in all Dr. Hartman's catalogues. Garrett (MS. Catalogue) says it is from Tahaa.

4102. "*Partula amanda* Garr. MS. = *faba* var. in A. N. S., Raiatea." Eight specimens.

4103. "*Partula dubia* Garr., MS. (typical), Tahaa, Coll. Garrett." Nine specimens, varying in color from brown to pale olive. The variety has a parietal tooth, more or less developed. This is *P. dubia* Garr., Journ. Acad. Nat. Sc. Phila., IX, p. 57, Pl. III, Fig. 80. In Dr. Hartman's Catalogue of the Genus *Partula*, 1881, *P. dubia* is placed below *P. fusca* Pse. in a section distinguished by "Pillar tooth always present," but the name is not printed in capitals to indicate a valid species. It is placed among the synonyms of *P. faba* in Dr. Hartman's later works.

4104. Three specimens of a somewhat ventricose pale olive or olive-brown variety of *P. faba*, labeled, on a slip, in Anthony's handwriting: "3. '*ventricosa*' J. G. A., Coll. Pse., J. G. Anth'y." On the slip, in another hand, is "*Hamlin*" and on the card, in Dr. Hartman's handwriting, "Typical"; on the back of the card is written: "Presented by Jno. G. Anthony." This must be the "*P. ventrosa* Anth. MS." placed among the synonyms of *P. faba* by Dr. Hartman, Proc. Acad. Nat. Sc. Phila., 1885, p. 206, and in his MS. work; probably also it is the "*P. ventricosa* Pse. MS." of the same catalogues. In Dr. Hartman's Catalogue of the Genus *Partula*, 1881, it is given as "*P. ventricosa* Coll. Pse. (Anthony)." *P. ventricosa* Garrett MS. (No. 4158) is a variety of *P. hebe*.

4105. "*Partula brunnea* Pse. MS. = *faba* var., Raiatea, Coll. Pse." Eight specimens, varying in color from castaneous to nearly black, and without bands. The name is placed among the synonyms of *P. faba* in all Dr. Hartman's catalogues.

4106. "*Partula pallida* Pse. MS. = *faba* (white var.), Raiatea, Coll. Pse." Five specimens of a pale olive-brown or whitish shell. One has a parietal tooth and is indistinguishable from the var. *dubia* Garr., No. 4103. See also No. 4096. The name is among the synonyms of *P. faba* in all Dr. Hartman's catalogues.

4107. "*Partula faba* Martyn, var. *marginata*, Tahaa, Coll. Garrett." Eleven adult and three embryonic examples. The form is somewhat ventricose; color dark castaneous with a narrow pale band at the suture. One specimen is much smaller than the others and less ventricose. This is *P. marginata* Garr. MS. The variety is included among the synonyms of *P. faba* in all Dr. Hartman's catalogues. See No. 4100.

4108. "*Partula microstoma* Pse. MS. (typical), Raiatea, Coll. Pse." Twelve specimens, most of them decorticated; color pale with a broad basal and narrow sutural band reddish brown. In one specimen, preserving the epidermis, the ground color is dark olivaceous. There is no pillar tooth. In all his earlier catalogues Dr. Hartman makes this a synonym of *P. vittata* Pse. In his MS. work he says, after his description of *P. vittata*: "*P. microstoma* Pse. MS. Coll. Pse., which has been referred to *vittata*, is probably *P. faba* weather-beaten." Mr. Garrett, to whom Dr. Hartman had sent specimens of the shell, wrote (Jan. 25, 1885): "Your *microstoma* is not typical. It is a large form of *radiata*. Pease's *microstoma* was named from the small size of the aperture; your example has a rather large mouth." See other extracts from the Garrett letters under No. 4309, and Hartman, Proc. Acad. Nat. Sc. Phila., 1885, p. 207.

NOTE.—In Dr. Hartman's MS. and in Proc. Acad. Nat. Sc. Phila., 1885, p. 206, he indicates that two other synonyms of *P. faba* are represented by specimens in his cabinet, viz., *P. biangulata* Pse. MS. and *P. propinqua* Pse. Ms. No shells so labeled have been found in the collection. Perhaps they are included under Nos. 4094–4097.

4109. "**Partula fusca** Pse. (Coll. Pse., typical), Raiatea." On the back of the card is written: "The two lower rows of examples on this card are probably hybrids between *fusca* and *faba*." Eleven specimens, the two lower rows including seven which are slightly larger than the others, and larger than any others in the collection referred to *P. fusca* or its synonyms. All are dark chestnut-colored, generally with a broad, indistinct paler band at the periphery; in three or four the band is not obvious.

Mr. Garrett wrote (Jan. 25, 1885): "*P. protea*, *fusca* and *navigatoria* are the most difficult species to study of any inhabiting Raiatea. They are all connected with each other by hybrids, and all are truly protean forms."



4110. "*Partula fusca* Pse. (typical), Raiatea, Coll. Pse., and Garrett." Thirteen specimens, varying in color from dark castaneous to cinereous-brownish, pale olivaceous brown and whitish. Most of them have a parietal tooth. See notes under Nos. 4128 and 4129.

4111. "*Partula protea* Pse. (typical), Raiatea, Coll. Pse., Coll. Garr." Twelve specimens, brown or dark castaneous, generally with an obscure paler band. In color and appearance they closely resemble *P. ovalis* Pse., Nos. 4126 and 4127. See note under 4128. In all Dr. Hartman's catalogues *P. protea* is treated as a variety of *fusca*. The specific identity was well recognized by Mr. Garrett as early as May 8, 1879. He wrote: "*P. protea* = *fusca* and is a strictly ground species."

4112. "*Partula protea* Pse., Raiatea." Seven specimens, brown or pale, without bands, and more or less obviously strigate.

4113. "*Partula protea* Pse. MS. (white var.), Raiatea,* Coll. Garr." Five specimens, pale with obscure oblique brownish strigations. One has a well-developed parietal tooth.

4114. "*Partula protea* Pse. MS., Raiatea, Garrett datum." One specimen. The shell is shorter than usual, with the last whorl slightly angulated; the surface is marked with fine broken spiral lines of a whitish color, apparently produced by some incrusting substance in the spiral sculpture. Possibly this is the shell which Dr. Hartman sent to Mr. Garrett for comparison, with the label *P. lugubris*, and which Garrett returned, January 25, 1885, with the following note: "Your *P. lugubris* is certainly not Pease's species described by him in the P. Z. S. 1864. Neither did I find anything like it in the valleys inhabited by *lugubris*. It is a form of *fusca*, and was collected in the Vaioare Valley."

4115. "*Partula protea* Pse. (abnormal), Raiatea." Three specimens of the banded variety, all with the spire much depressed: two show the parietal tooth.

4116. "*Partula protea* Pse. MS. From the British Museum. Marked *P. navigatoria* Pfr., Coll. Pse." On the back of the card is written: "Sent by the British Museum." Five specimens, one dark castaneous, obsoletely banded, three castaneous, banded, and one pale. Carpenter referred *P. protea* to *P. navigatoria* Pfr.

4117. "*Partula citrina* Pse. (typical), Raiatea." Eight specimens. In his earlier catalogues Dr. Hartman placed this among the synonyms of *P. faba*. In Proc. Acad. Nat. Sc. Phila., 1885, p. 207,

he gives it specific rank in deference to the opinion of Mr. Garrett, and it is so allowed in his later writings. Mr. Garrett wrote, September 8, 1880: "*P. citrina* is most certainly a good species and differs more from *faba* than *thalia* and *compacta* do from *auriculata*. Mr. Pease did not have many specimens. The last time I visited the locality I collected over 800 specimens, most of which I sent to Mus. Godeff. It is remarkably uniform in all its specific characters. I never had the slightest doubt of its specific value."

4118. "*Partula vittata* Pse. (typical), Raiatea, Coll. Pse." Eleven specimens. Two of these are darker and without the parietal tooth, approaching some of the examples referred to *P. fusca* var. *protea*, No. 4111.

4119. *Partula vittata* Pse., Raiatea, Coll. Pse." Three specimens. It is doubtful if these are really *P. vittata*. They are considerably larger and more elongate than other examples referred to *P. vittata* or its synonyms, and resembling those included under No. 4129 (*P. navigatoria*), differing principally in having an obscure pale band; one is without the parietal tooth. Mr. Garrett wrote to Dr. Hartman (February 12, 1883): "*P. navigatoria* is frequently banded."

4120. "*Partula terrestris* Pease MS., Raiatea, Coll. Pse." Twelve specimens; five dark castaneous, four castaneous with a broad pale band and three pale. In Dr. Hartman's earlier works this is made a synonym of *P. approximata* Pse.; in his later ones both are included as varieties of *P. vittata* Pse. See notes under No. 4128.

4121. "*Partula approximata* Pse. MS., Raiatea, Colls. Pse. and Garr." Fourteen specimens, most of them brown in color, including one depauperated form, one albino, and one with distinct oblique streaks; the latter is indistinguishable from small examples included under No. 4129 (= *P. navigatoria*). In Dr. Hartman's earlier catalogues *P. approximata* is treated as a distinct species, with *P. terrestris* as a synonym; in his later works both are included as varieties under *P. vittata*.

4122. "*Partula approximata* Pse., Raiatea." Four specimens, showing extremes of variation in size and form.

4123. "*Partula approximata* Pse. MS. (dark var.), Raiatea, Coll. Pse." Twelve specimens, all dark castaneous or brown. In several the parietal tooth is wanting or rudimentary.

NOTE.—This is perhaps the same as *P. castanea* Pse. MS., which Dr. Hartman placed among the varieties of *P. vittata*, Proc. Acad.

Nat. Sci. Phila., 1885, p. 207, with a † indicating that he had specimens in his own cabinet. No shells labeled *P. castanea* have been found.

4124. "*Partula approximata* Pse. MS., Raiatea, Garr." Eight specimens. Two are pale brownish, the others reddish brown with a broad yellow band, corresponding to the banded specimens included under No. 4120 except that the colors are brighter. (See No. 4125, below, and notes under 4142 and 4170.) All the specimens included under No. 4124 have the umbilicus entirely closed, as in *P. imperforata*, No. 4170; in Nos. 4118-4123 the umbilicus is generally a little open.

4125. "*Partula ovalis* Pse." One specimen, somewhat immature and with the aperture slightly distorted as if pressed toward the left. Color orange brown with a broad yellow band. It is mounted on a small card, different from the cabinet cards used by Dr. Hartman; the name is carelessly written and there is no indication of locality; it appears, in fact, to be a temporary mount. It differs from *ovalis* in color and in the closed umbilicus, and in both these characters it agrees with *approximata* (= *radiata*), No. 4124; from the latter it differs in having the lip less developed and being without the parietal tooth; but this may be due to immaturity.

It is possible that this is the specimen labeled *P. ovalis*, which was sent to Mr. Garrett and returned, as appears from the Garrett letters. Mr. Garrett wrote (Jan. 25, 1885): "Your *ovalis*, which is not a symmetrical example, has the aperture slightly pressed toward the left. It is widely different from my *ovalis*. It is one of the forms of *fusca* inhabiting Vaioare Valley. It may be a hybrid between *fusca* and *navigatoria*." The specimen, however, has no resemblance to *P. navigatoria*, and the shell referred to may have been a specimen of the true *ovalis*.

4126. "**Partula ovalis** Pse. (type) (typical, H. H. S.), Raiatea, Coll. Pse." Twelve specimens, varying considerably in size and form. Color dark castaneous or brown, three or four examples showing a yellow band more or less apparent.

4127. "*Partula ovalis* Pse., Raiatea." Seven specimens, larger than those included under No. 4126 and of a uniform dark castaneous color. They are hardly distinguishable from No. 4111 (*P. protea*, = *fusca*), except by the absence of the parietal tooth, and perhaps they should be referred to that species. Dr. Hartman long regarded *ovalis*

as a synonym of *fusca*, to which *protea* was also referred: this was partly owing to erroneous labels in the Pease and other collections, which were repeated in the Hartman cabinet. When, later, he separated *ovalis* (MS. Catalogue), it does not appear that he corrected his labels to correspond with the separation. Hence No. 4127, though labeled *P. ovalis*, may really belong with No. 4111 among the varieties of *P. fusca*. See notes under 4128, below.

4128. "*Partula fusca* Pse. (typical), Raiatea, Coll. Pse." On the back of the card is written: "The type *fusca* in Coll. Pse. are like these and = *ovalis* Pse. These are the young of *ovalis*." Six specimens, all somewhat immature and uniform dark castaneous in color. See Hartman, Proc. Acad. Nat. Sc. Phila., 1885, pp. 207-208, where he observes: "The type examples of *fusca* (Coll. Pse.) are immature shells of the uniform dark fuscous *ovalis*, two quarts of which were included in the Pease duplicates, labeled *P. ovalis* by Pease. The shell is solid, of a uniform dark chestnut-brown or fuscous color, with a white expanded lip, and the pillar tooth is absent. I have seen several suites labeled *fusca*, from the hands of Mr. Pease, in which the banded *ovalis* and *protea* predominated."

Mr. Garrett wrote (Jan. 25, 1885): "After Pease sent his nine sets of *Partula* to London he had no duplicates left of *fusca* or *citrina*." It is, perhaps, impossible to identify the form which Pease originally described as *P. ovalis*; he did not figure it, and his description would apply to varieties of two or three species. Through shifting of labels or carelessness, two or three distinct forms among his duplicates became known by this name. Dr. Hartman supposed it to be a shell which he long regarded as a variety of *P. fusca* Pse., but eventually separated as a valid species in his MS. work; it appears doubtful, however, whether he made a corresponding change in his labels. As nearly as can be ascertained, the shells which he meant to separate as *ovalis* are No. 4126, labeled *ovalis*, and No. 4128, labeled *fusca*; No. 4127, labeled *ovalis*, is doubtful and may eventually be referred to *fusca*; No. 4125, labeled *ovalis*, is certainly not that species.

Most of the Peasean names were adopted from Garrett's provisional ones, but this was not the case with *ovalis*; hence Garrett, when he sold his collection to Pease, retained no duplicates with that label. Subsequently he attempted to identify it from the description, but was never quite sure, as appears from his letter of February 10, 1879, in which he says: "I have only five specimens of what I now call the

true *ovalis*, two of the banded variety and three of the type. The shells I formerly supposed to be *ovalis* I now refer to *lugubris*. On looking over my journal I see recorded the discovery of a new ground *Partula* in the Faaloo Valley on the east coast of Raiatea, and I gave it the provisional name *castanea*. Mr. Pease, when he bought my collection, adopted all my provisional names which I gave to each species when discovered. As I did not use the name *ovalis*, I have every reason to believe that he renamed the shell. His description accords much better with (my) *castanea* than with the shell I formerly supposed to be *ovalis*. It is very closely allied to *vittata*, as you will remark from the description." Subsequently both Dr. Hartman and Mr. Garrett regarded *castanea* Pse. MS. and Garr. MS. as a variety of *vittata* Pse. (see note under No. 4123). Mr. Garrett appears to have returned to his idea that *ovalis* was a synonym or variety of *lugubris*, and he gives it as such in Journ. Acad. Nat. Sci. Phila., IX, p. 79. But it does not appear that this was the shell which Dr. Hartman called *ovalis*, and it is doubtful if Garrett had that form in his collection. They made direct comparisons of specimens. See extracts from Mr. Garrett's letter under Nos. 4130 and 4125; the shell referred to by Garrett, quoted under the latter number, may be the true *ovalis*.

4129. ***Partula navigatoria*** Pfr. "*Partula variabilis* Pse. = *navigatoria* Pfr., Raiatea, Coll. Pse., Garr. and Geale." Fourteen specimens, varying much in size and form; all are pale brown or cinereous brown, with oblique streaks of a darker color, and without bands. The name *navigatoria* is a misnomer, but has remained in use. Mr. Pease seems to have been in doubt as to the identity of this species. He wrote to Mr. Garrett, April 21, 1870 (quoted in Garrett's letter, March 15, 1882): "Among the species I have lately determined is '*navigatoria*' (Pfr.) which is a small variety of *faba*." In Pease's list of Polynesian shells, Proc. Zool. Soc., 1871, *Partula navigatoria* does not appear. Carpenter referred *fusca* Pse. to *navigatoria*. See No. 4116.

Mr. Garrett wrote to Dr. Hartman, Feb. 12, 1883: "*P. navigatoria* is frequently banded and some forms cannot be distinguished from some elongated forms of *fusca*. Had the former been a strictly ground species I would have made it synonymous with the latter." See under No. 4119 and No. 4109.

4130. "***Partula lugubris*** Pse., Raiatea, Coll. Pse." Six specimens, four immature and much smaller than the others. Five are dark brown, lighter above, with a narrow pale peripheral band; the other (imma-

ture) is pale with a narrow dark band. It is evident that Dr. Hartman doubted the validity of this species, which was not abundantly represented in his own cabinet. In his first catalogue (1881) he makes it a synonym of *fusca*. Later, in Proc. Acad. Nat. Sc. Phila., 1885, p. 208, he follows Garrett in considering it distinct; the name does not appear in the "Nautilus" catalogue, Nov., 1892, but was perhaps omitted by mistake. In his MS. catalogue he treats it as a valid species, with *P. ovalis* Garr. (non Pse.) as a synonym. See extract from Mr. Garrett's letter under No. 4128. In the same letter (Jan. 25, 1885) he says: "I send you one of my poor specimens of *lugubris* and one of *ovalis* (= *lugubris*, dark var.). In some very old specimens of *lugubris* the outer lip is more labiated than in the example I send and the upper portion of the labiation is slightly emarginate, and some have a slight tubercle beneath and next to the emargination."

4131. "*Partula lugubris* Pse. (typical), Raiatea, Coll. Pse." Eleven specimens, only three or four fully mature. Two are pale with a darker band; seven are dark with a pale band; two are entirely dark.

4132. "***Partula radiata*** Pse. MS., Raiatea, Coll. Pse." Nine specimens, brown or pale, with oblique strigations and without bands. Most of these examples are larger and more elongate than other specimens of *radiata* in the collection. The species was not described by Pease, and was first figured by Garrett in Journ. Acad. Nat. Sc. Phila., IX, Pl. III, Fig. 45. Mr. Garrett supposed that *P. microstoma* Pse. MS. was a variety of this species. See under No. 4309.

4133. "*Partula radiata* Pse. MS. (white var.). Distributed as *P. compressa* Pfr.; Raiatea, Coll. Pse." (See Hartman, Proc. Acad. Nat. Sc. Phila., 1885, p. 208, and MS. cat.) Twelve specimens, pale and obliquely strigate, without bands. All are much smaller than those included under No. 4132; five are compressed and slightly angulate on the body whorl.

4134. "*Partula radiata* Pse. MS. (banded var.), (type) (typical, H. H. S.), Raiatea, Coll. Pse." Thirteen specimens, varying much in size and form; in several the bands are indistinct or wanting. Compare No. 4108.

4135. "*Partula radiata* Pse.? or hybrids, Raiatea." Seven specimens, all pale and some with only traces of the oblique streaks. Compare No. 4310.

4136. "**Partula planilabrum** Pse. = *suturalis* Pse. MS., Raiatea." Nine specimens, all dark castaneous with a narrow pale sutural band. Mr. Garrett wrote to Dr. Hartman, Feb. 10, 1879: "*P. suturalis* is the name I gave to one of the Tahaa species, and finding it preoccupied Mr. Pease changed it to *planilabrum*." The species is also ascribed to Tahaa in a list of the Society Island Partulas sent to Dr. Hartman by Mr. Garrett, May 25, 1882. Dr. Hartman, in his MS. catalogue, gives the locality: "Haamene Valley, E. coast of Raiatea." Perhaps Tahaa should be substituted for Raiatea. As Mr. Garrett resided in the Society Islands, he could hardly have been mistaken about the habitat of a species which he had personally collected.

4137. "*Partula planilabrum* Pse. (banded var.) Raiatea, Coll. Pse." Seven specimens, showing a broad peripheral band in addition to the narrow sutural one. One is entirely pale, with obscure bands.

4138. "**Partula auriculata** Brod. (typical) Raiatea, Coll. Pse." Fourteen specimens, all dark, with a broad yellowish band on the body whorl; in some the band is nearly obsolete. Mr. Garrett observes in a letter to Dr. Hartman, Feb. 10, 1879: "Reeve's figs. 11a and 16b are both *auriculata*, the latter the type and the former a variety with a broad yellowish band in the middle of the body whorl. It agrees exactly with examples in my collection."

4139. "*Partula auriculata* Brod., Raiatea Isld., Geale datum." Twelve specimens, varying in color from very dark brown to whitish; several are more or less obviously banded. The examples are somewhat smaller than those included under No. 4138.

4140. "*Partula robusta* Pse. MS. (dark var.), Raiatea, Coll. Smithsonian, Coll. Pse." Fourteen specimens, light brown or pale, with oblique brown strigations and without any trace of bands; four are whitish, with obsolete strigations, and may be considered albinos. The shells are less robust than those of the typical *auriculata*, Nos. 4138 and 4139, and the spire is proportionally shorter. *P. robusta* is united with *P. auriculata* in all Dr. Hartman's catalogues.

4141. "*Partula robusta* Pse. MS. (dark var.), Raiatea, Coll. Smithsonian." Twelve specimens, similar in form to No. 4140, but brown, obsoletely strigate, or uniform dark brown.

4142. "*Partula solidula* Pse. MS. (type) (typical, H. H. S.) Raiatea, Coll. Pse." On the back of the card is written: "non Reeve. * * * = *approximata* Pse. * * * = *robusta*" (the reference to *robusta* appears to have been written at a later date). *P. solidula* Reeve (non

Pease) appears to be the same as *compacta* Pse. (see Hartman, Proc. Acad. Nat. Sci. Phila., 1885, p. 209). Three specimens, one much shorter than the other and probably abnormal. In form the normal examples resemble large examples of the typical *auriculata*, No. 4138, and still more some of *P. compacta* Pse., No. 4144; like the latter they have a prominent denticle. In color they are almost exactly like some of the specimens included under No. 4124, referred by Dr. Hartman to *approximata* Pse. MS., = *vittata* Pse. Probably this resemblance led Dr. Hartman at one time to refer the shells to *approximata* Pse. (see Cat. Partula, 1881, p. 7), but the form, the strong denticle and the umbilicus partly open are characteristics of the *auriculata* group. In Proc. Acad. Nat. Sci. Phila., 1885, p. 209, and in the later catalogues, they are referred to *P. auriculata*. The mixture of characters suggests a hybrid.

NOTE.—**Partula gonocheila** Pfr., which Dr. Hartman places next to *P. auriculata*, is not represented by specimens in the collection. There is, however, a drawing of the type specimen in the British Museum by E. A. Smith (No. 4345). This was sent to Mr. Garrett and returned. Garrett wrote (Nov. 25, 1885): "*gonocheila* is undoubtedly a Marquesas species; it has no resemblance to Reeve's figure and differs entirely from any form of *ganymedes*." Reeve gives the habitat "Navigator Islands," and Dr. Hartman, in his MS. catalogue, says it is from Samoa.

4143. "**Partula bilineata** Pse. (typical), Tahaa, Coll. Pse." Nine specimens, variously banded, except one which is white and appears to be an albino.

4144. "**Partula compacta** Pse. (typical), Raiatea, Coll. Pse." Ten specimens, all whitish, except one which is light brown. Cf. No. 4142.

4145. "**Partula thalia** Garr. MS. = *abbreviata* Pse., Raiatea, Coll. Pse. and Garr." Fourteen specimens. The species was published by Garrett in his "Terrestrial Mollusca of the Society Islands," Journ. Acad. Nat. Sc. Phila., IX, p. 69, Plate III, Fig. 46.

4146. "*Partula thulia* Garr. MS. (depauperated), Raiatea." Four specimens.

4147. "**Partula umbilicata** Pse. (typical), Tahaa, Coll. Garr." Sixteen specimens, varying in color from dark castaneous to white, sometimes with an obsolete darker or paler band at the periphery, or paler at the suture; one, larger and rather more obese than the others, is purplish-brown with a conspicuous pale peripheral band.

Mr. Garrett wrote to Dr. Hartman, Feb. 10, 1879: "*P. umbilicata* is, to my eye, one of the most clearly marked species found in the islands, and is more nearly related to *auriculata* than to *hebe*."

4148. "*Partula umbilicata* Pse. (abnormal)." One specimen. The spire is contorted and much depressed: color nearly white.

4149. "***Partula expansa*** Pse. (typical), Samoa." Two specimens. Dr. Hartman, in his MS. catalogue, places this species provisionally next to *P. umbilicata*. In previous writings he gave it various positions, generally with doubt.

4150. "***Partula crassilabris*** Pse. (typical), Raiatea." Fourteen specimens, generally brown with an obsolete pale band: one small example is entirely brown and one is an albino.

4151. "*Partula crassilabris* Pse., Raiatea." Four specimens, all small and unicolored, brown or pale brown.

4152. "***Partula rustica*** Pse. (type) (typical, H. H. S.), Raiatea, Coll. Pse." Eleven specimens, uncolored brown or pale or with an obscure paler band. Mr. Garrett always regarded this as a valid species. He expresses this opinion in a letter to Dr. Hartman, March 15, 1882, and says that *P. pinguis* is a synonym.

4153. "*Partula rustica* Pse. (typical), Raiatea." Twelve specimens, including two pale or albino.

4154. "*Partula pinguis* Garr., MS. Garr. dat., Coll. Pse." Three specimens of a uniform light brown color. United with *rustica* in all Dr. Hartman's catalogues.

4155. "***Partula hebe*** Pfr. (typical), Raiatea, Coll. Pse." Nine specimens, all denuded of epidermis and white, or with the apex tinted. Mr. Garrett observed (March 8, 1879): "I have collected thousands of *hebe* (typical) which inhabits two contiguous valleys, and never found one with epidermis. But *hebe* var. *bella* Pse. and *hebe* var. *ventricosa* Garr.—not Pease—exhibit epidermis, but inhabit other parts of the island."

4156. "*Partula hebe* Pfr. vars., Raiatea." Five specimens. Two are like var. *P. bella* Pse. (No. 4157); two are like *P. ventricosa* Garr. MS. (No. 4158); the fifth is a typical *hebe*.

4157. "*Partula bella* Pse. MS., Raiatea (Coll. Pse.)." Eleven specimens. This is *P. hebe*, var. *bella* Pse., Proc. Zool. Soc., 1871, p. 474, included as a variety of *hebe* in all Dr. Hartman's catalogues. The shells have a well-preserved epidermis and the apex is rosy. See under No. 4155.

4158. *Partula ventricosa* Garr. MS., Raiatea, Coll. Garr." Seven specimens. Six of these retain the epidermis but are without the rosy apex of *hebe* var. *bella*; the seventh is an ordinary decorticated *hebe*, probably placed on the card for comparison. See under No. 4155, *P. ventricosa* is included as a variety of *hebe* in all Dr. Hartman's papers, though in the 1881 catalogue he gives the name *ventrosa* by error, and it is so written on the label. *P. ventricosa* Anth. MS. (No. 4104) is a very different shell.

4159. "*Partula globosa* Pse. MS. (typical), Raiatea." Six specimens. It differs from *P. hebe* var. *bella* Pse. (No. 4157) only in being a little smaller and more globose, the rosy apex wanting or less strongly defined. Included among the varieties of *P. hebe* in all Dr. Hartman's catalogues.

4160. "***Partula gibba*** Fér. (type) (typical, H. H. S.), Guam, Ladrone Islands." Fourteen specimens, pale purplish brown, pale yellowish or whitish, with a white sutural line, and the apex generally darker. Mr. Garrett, in a letter to Dr. Hartman, Dec. 30, 1884, remarks that when he visited Guam he found *P. gibba* in great profusion.

4161. "*Partula mastersii* Pfr., Guam, Ladrone Islands." Nine specimens. A dark variety of *P. gibba*, preserving the white sutural line. It is referred to *gibba* in all Dr. Hartman's catalogues.

4162. "***Partula bicolor*** Pse., Guam, Ladrone Islands, Coll. Pse." Five specimens, pale yellow, with or without a purplish band above the suture. On the back of the card is written: "Sent to Pease by Brazier and picked from three bushels of *P. gibba* from Guam, collected by Brazier's father-in-law, Capt. Rossiter." Brazier wrote to Dr. Hartman, June 18, 1885: "*P. bicolor* Pease was described from three specimens sent by me to him. They were picked out by me from about three bushels of *P. gibba* from Guam, collected by my late father-in-law, Captain Thomas Rossiter, in a French whaler, 45 years ago." See No. 4275.

4163. "***Partula radiolata*** Pfr., Guam, Ladrone Islands." Nine specimens. In memoranda written by Dr. Cox about 1881, he says: "*P. radiolata* Pfr. never came from New Ireland, in my opinion; it is from Guam."

4164. "***Partula dentifera*** Pfr. (type), (typical, H. S. S.), Raiatea, Coll. Pse." Fourteen specimens. Three or four have a small parietal tooth. (Compare. No. 4166.)

4165. "*Partula decorticata* Pse. MS. = *dentifera* Pfr., Raiatea." Five specimens, decorticated in irregular spots and lines, but otherwise not differing from the typical *dentifera*, to which it is referred in Dr. Hartman's catalogues.

"4166. "*Partula raiatensis* Garr. MS., Raiatea, Garr. datum" Seven specimens. It differs from the typical *dentifera* principally in having a strong parietal tooth and the lip denticle less prominent. The apex is generally rosy. Given as a variety of *P. dentifera* in Dr. Hartman's catalogues. Garrett referred *raiatensis* to *imperfurata*. See Hartman, Proc. Acad. Nat. Sc. Phila., 1885, p. 210.

4167. "*Partula raiatensis* Garr. MS., Raiatea. (Garr. dat.)." One specimen.

4168. "**Partula callifera** Pfr., Raiatea." Sixteen specimens, showing only a small range of variation.

4169. "**Partula formosa** Pse. MS., Raiatea, Coll. Pse., Coll. Garr." Twelve specimens, including one albino; five or six have a parietal tooth. The species was figured by Garrett in Journ. Acad. Nat. Sc. Phila., IX, Pl. III., Fig. 49.

4170. "**Partula imperfurata** Pse. (typical), Hapi, Raiatea (Coll. Pse.)." Hapi or Hapai is a valley in Raiatea. Fourteen specimens. Six are reddish brown to blackish with a yellow peripheral band; five are pale with one or two reddish brown bands; three are pale. The banded examples are hardly distinguishable from specimens included under No. 4123, referred to *P. approximata* Pse. MS. = *P. vittata* Pse. See also No. 4125 and compare No. 4142. The species was figured by Garret, Journ. Acad. Nat. Sc. Phila., IX, Pl. III, Fig. 53.

4171. "*Partula imperfurata* Pse. MS., Raiatea, Coll. Garr." Seven specimens. One is reddish brown with a yellow band; one is yellow with the apex and a peripheral band reddish brown; one is similar to the last with the band obscure; four are pale. The aperture is broader and the lip and denticle less developed than in the specimens included under No. 4170; probably the examples are not quite mature.

4172. "*Partula imperfurata* Pse. MS. (unicolored var.), Raiatea, Coll. Pse." Twelve specimens, light brown to pale yellowish, without bands.

4173. "**Partula virginea** Pse. MS., Tahaa." Fifteen specimens, varying from castaneous or ashy-brown to yellowish white; some have a darker apex, and nearly all show a white line at the suture.

4174. "*Partula virginea* Pse. MS., 'Tahaa.' Seven specimens, brown, ashy or pale; some show an obscure darker peripheral band, and in two there is a white band below the periphery.

4175. "*Partula virginea* Pse. MS. var., 'Tahaa.' Nine specimens. Generally smaller than the type and with the umbilicus partly closed.

4176. "***Partula lutea*** Lesson (typical) = *lilacina* Pfr., Bora-bora Island, Coll. Garr." Nine specimens.

4177. "*Partula lutea* Less., Bora-bora Island." Two specimens. One is similar to the examples under 4176, but has a rosy apex; the other is ventricose, partly decorticated, and ash-colored (= *P. lilacina*).

4178. "*Partula lutea* Less., ventricose var., Bora-bora." Three specimens.

4179. "*Partula lilacina* Pfr. (typical), Bora-bora Island." On the back of the card is written: "The type example has the epidermis denuded, which gives it a lilac color." Four specimens. One is denuded and is like the ashy or lilac-colored example included under No. 4177; the others differ from *P. lutea* (No. 4176) only in being darker. With the Hartman collection there is a colored drawing (No. 4345), by E. A. Smith, of the type example of *lilacina* in the British Museum.

4180. "*Partula lilacina* Pfr. (dwarf), Bora-bora Island." One specimen.

4181. "***Partula garrettii*** Pse., Raiatea, Garrett datum." Nineteen specimens, including one section.

4182. "***Partula otaheitana*** Brug. vars., Tahiti." Sixteen specimens, illustrating the variations of this species. Two are dextral and unicolored light brown (= No. 4184); two are elongate, light brown or pale, sinistral (= *P. turricula* Pse. MS.); two are brown, sinistral, without the parietal tooth (= *P. rubescens* Rve.); two are shorter, brown, sinistral (= *P. brevicula* Pse. MS. and *perversa* Pse.); three are sinistral with broad bands (= *P. sinistrorsa* Pse., banded var.); five are pale with narrow bands, or entirely pale (= *P. amabilis* Rve.).

Writing to Dr. Hartman, Oct. 10, 1883, Mr. Garrett says: "Bruguière's type of *otaheitana* is the plain reversed shell from the Fantana Valley. Dillwin's description refers to the same shell. Ferrusac figured several varieties to represent Bruguière's species." See No. 4200.

4183. "*Partula otaheitana* Brug. var., Tahiti." Three specimens of a small whitish variety with dark apex.

4184. "*Partula otaheitana* Brug. (dextral variety), Tahiti." Fourteen specimens, pale or reddish brown (= *P. reeveana* Pfr.).

4185. "*Partula rubescens* Reeve, type (typical, H. H. S.), Tahiti, Coll. Pse." Nine specimens, eight sinistral and one dextral (for comparison?). The shells are larger and more elongate than the typical *otaheitana*, brown to pale, the upper whorls tinged with rosy. This name is placed among the synonyms of *P. otaheitana* in all Dr. Hartman's catalogues.

4186. "*Partula sinistrorsa* Pse. MS. = *otaheitana* banded, type (typical, H. H. S.), Tahiti, Coll. Pse." Fifteen specimens. A variety with broad or narrow bands, sometimes obscure. The shells are sinistral except (for comparison) one which is dextral and distinctly banded. The latter is very close to the banded var. of *P. affinis* Pse. See No. 4200.

4187. "*Partula brevicula* Pse. MS. = *otaheitana* var., Tahiti, Coll. Pse." Twelve specimens. A small sinistral form, unicolored brown or pale. The name is included among the synonyms of *P. otaheitana* in Dr. Hartman's catalogue, 1881, and in his MS. work.

4188. "*Partula perversa* Pse., Tahiti, Coll. Pse." Nine specimens, eight sinistral and one (for comparison?) dextral; brown or pale, without bands. This cannot be distinguished from *P. brevicula* Pse. MS., No. 4187. The name *perversa* is a manuscript one. It may have been an attempt to revive *Helix perversa* of Chemnitz. Dr. Hartman gives it as a synonym of *otaheitana* in all his catalogues.

4189. "*Partula crassa* Pse. MS., Tahiti, Coll. Pse." Four specimens, all sinistral. Two of them (probably the typical form) are unusually small, chestnut-colored, polished; the others are light brown or pale, one with a narrow band (= *sinistrorsa*, No. 4186). The name is among the synonyms of *otaheitana* in all Dr. Hartman's catalogues.

4190. "*Partula turricula* Pse. MS. Type (typical, H. H. S.) from Coll. Pse." Two sinistral specimens, one light reddish brown and the other white. This is larger and more elongate than any other variety of *P. otaheitana* in the Hartman collection, though specimens of *amabilis* Rve., No. 4191, approach it. This MS. name is included among the synonyms of *P. otaheitana* in all Dr. Hartman's catalogues. It is not the New Hebrides species which Pease described under the the same name, Amer. Journ. Conch., 1872.

4191. "*Partula amabilis* Rve., Tahiti, Coll. Pse." Eight specimens, all sinistral and rather larger than the typical *otaheitanus*. Six are pale yellowish; the others (for comparison?) are banded (= *sinistrorsa* Pse.). *P. amabilis* is given among the varieties of *P. otaheitanus* in all Dr. Hartman's catalogues.

4192. "*Partula recveana* Pfr., Tahiti." Three specimens. A large, pale, dextral form of *P. otaheitanus*, with which it is united in all Dr. Hartman's catalogues. On the back of the card is written: "These shells correspond to the type in the B. M." In the Hartman collection there is a drawing of the British Museum type by E. A. Smith (No. 4344). This drawing was seen by Garrett, who wrote, Feb. 12, 1883: "Smith's figure of *recveana*, which I return, is undoubtedly one of the forms of *otaheitanus* from the Fantana Valley, the headquarters of the type as well as forms which cannot be separated from some forms of *lignaria*, *affinis*, *amabilis*, *sinistrorsa*, *rubescens*, etc."

Dr. Cox, in a memorandum written about 1881, expresses his doubts of the habitat, "Solomon Islands," attributed to *P. recveana*.

NOTES.—In Proc. Acad. Nat. Sci. Phila., 1885, p. 212, *Partula isabellina* Rve. is included among the synonyms of *P. otaheitanus*, with a † indicating that there are specimens in the Hartman collection. No shells with this label have been found.

Partula vanikorensis Quoy et Gaim. Dr. Hartman regards this as a valid species and places it next to *P. otaheitanus*. It is not represented in the Hartman collection, and the only specimens recorded are the types in the Jardin des Plantes.

4193. "**Partula lignaria** Pse., Tahiti, Coll. Pse. and Coll. Geale." Ten specimens, showing varieties. Two are dark chestnut or bay brown; two are cinereous with obsolete strigations; four are pale with a narrow dark band; one is brownish with a darker band (typical *lignaria*); one is soiled brown with a narrow peripheral band and another below the suture. In Cat. Gen. Partula, 1881, Dr. Hartman considers this shell as a variety of *P. rufa* Less. Subsequently the true *rufa* was discovered, and in the later catalogues *lignaria* is regarded as a valid species, with *affinis* and *nitens* as synonyms. *P. lignaria* Garr. (non Pse.) is a variety of *otaheitanus*.

4194. "*Partula lignaria* Pse., Tahiti, (Coll. Garr.)." Five specimens. Three are light brown with a peripheral band (typical *lignaria*); two are similar in color, with oblique streaks and without the band. See No. 4200.

4195. "*Partula lignaria* Pse., Tahiti." Four specimens. A small variety, pale with broad oblique streaks; one is a dwarf and nearly white.

4196. "*Partula lignaria* Pse. var., Tahiti, Coll. Pse." Three specimens. Two are orange-brown with a broad yellow band below the periphery, reappearing on the upper whorls; the other is orange-brown with an obscure yellow band above the periphery. In color the variety approaches *P. nitens* Pfr., No. 4204, but the form is more elongate.

4197. "*Partula affinis* Pse., Tahiti, Coll. Pse." Twelve specimens; reddish brown, or paler and with oblique strigations. *P. affinis* is united with *P. lignaria* in all Dr. Hartman's catalogues.

4198. "*Partula affinis* Pse., Tahiti." Eight specimens; light brown or pale, with faint strigations.

4199. "*Partula affinis* Pse., Tahiti (Coll. Pse.)." Sixteen specimens. Seven are brownish with oblique streaks; six are paler; two are whitish with peripheral and sutural bands.

4200. "*Partula affinis*, Pse. var., Tahiti, Coll. Pse." Twelve specimens. Eight are white and probably albinos; four are pale with basal, peripheral and sutural bands. Regarding the latter Dr. Hartman wrote on the back of the card: "The variety with the brown band is marked in the Jardin des Plantes *P. otaheitana* Fér. var. *fasciata*." Mr. Garrett wrote, Sept. 8, 1880: "The banded var. of *affinis* was, as I said, confined to a single valley eight miles east of Papenoo. Pease mentions it as a variety in his description of *affinis*. When I put up the first sets which Pease sent to England it was labeled *affinis* var. *dubia*. Carpenter referred it to *P. varia* var.!" According to Dr. Hartman, *P. affinis* Garr. (non Pse.) = *otaheitana* Brug.; it appears probable, however, that Garrett is speaking of the true *affinis* Pse., which he regarded as a variety of *otaheitana*. Compare No. 4194, received from Garrett, and No. 4186. The banded examples under the label *P. lignaria* (Nos. 4193, 4194) are larger, more elongate and not so shining.

4201. "*Partula affinis*, Pse., Tahiti." On the back of the card is written: "This example occurred with the Pease duplicates from Tahiti." One specimen, orange brown with an ill-defined yellow band (= *P. nitens* Pfr.).

4202. "*Partula affinis* Pse., var. *bacca* Pse. MS., Tahiti, Coll. Pse." Five specimens. Three are brown, small and short, approaching the

depauperated specimen, No. 4203 ; two are larger, thin, inflated, pale with a darker apex.

4203. "*P. affinis* Pse. (depauperated)." One specimen.

4204. "*Partula nitens* Pfr., Coll. Taylor." On the back of the card is written : "Sent Smith (E. A. Smith) one example. He says *nodosa*, type. No." Three specimens. Compare Nos. 4196 and 4201. *P. nitens* is referred to *P. lignaria* in all Dr. Hartman's catalogues.

4205. "**Partula clara** Pse. (type) (typical, H. H. S.), Tahiti, Coll. Pse. (rare)." Ten specimens. One is brown ; three are yellowish ; two are pale brown, banded ; four are white. Mr. Garrett wrote, Feb. 10, 1879 : "*P. clara* is not a Moorea species. It is a very rare local Tahiti species and, like *annectens* and *turgida*, appears to be gradually becoming extinct. I have only three examples in my collection." In his MS. Catalogue Dr. Hartman gives the habitat "southern part of Tahiti."

4206. "**Partula stolidia** Pse. (typical), Tahiti." Five specimens, varying in color from bay brown to yellowish. In his MS. Catalogue Dr. Hartman says that the species is from "Papenoo Valley, N. E. coast of Tahiti."

4207. "**Partula filosa** Pfr. = *lineolata* Pse., Tahiti." Twelve specimens, castaneous to pale yellowish, with oblique white strigations. In the Hartman collection there is a drawing by E. A. Smith of the type *filosa* in the British Museum (No. 4345). Mr. Garrett, who saw this drawing, agreed with Dr. Hartman that the species was the same as Pease's *lineolata* (letter of Nov. 25, 1883), and he gave *filosa* the priority in his paper on Society Island shells. In previous letters he had expressed a doubt of the habitat, "Navigator Islands," attributed to *filosa* by Pfeiffer.

4208. "**Partula nodosa** Pfr. (type) (typical H. H. S.), Tahiti, Coll. Taylor." Six specimens, brown with a white sutural band and oblique strigations. Two examples have white peripheral bands interrupted by the strigations, and in one the entire base is pale ; these approach the more strongly banded examples of var. *trilineata*, No. 4209. In his MS. catalogue Dr. Hartman gives the habitat "Panaavia Valley, North Coast, Tahiti."

4209. "*Partula nodosa* Pfr. = *trilineata* Pse., Tahiti." Fourteen specimens. Well characterized by the three narrow dark bands on a paler ground ; in several the bands are broader and the ground color is clouded by strigations. This is *P. trilineata* Pse., Amer. Journ.

Conch., 1866, p. 185; 1867, p. 81, Pl. I. Fig. 1, and *P. nodosa* var. *trilineata* Pse., Proc. Zoöl. Soc. London, 1871, p. 473, the habitat ascribed to it being Moorea. Dr. Hartman in his MS. catalogue described *trilineata* as the typical form of *nodosa*.

4210. "**Partula compressa** Pfr. (typical), Fiji Isl." Four specimens. See No. 4133.

NOTE.—**Partula lineata** Less. This doubtful species, which Dr. Hartman places after *P. compressa* in his MS. catalogue, is not represented in the Hartman collection. In Proc. Acad. Nat. Sc. Phila., 1885, p. 213, the name is given with a † indicating that Dr. Hartman had specimens in his cabinet; but this is evidently a mistake, as the context shows that he relied solely on Lesson's figure and description. Mr. Garrett wrote to Dr. Hartman, Jan. 5, 1884: "I think Lesson's *lineata* may be considered a lost species. I regret using the name in my paper." He refers to his paper in Journ. Acad. Nat. Sc. Phila., IX, p. 50, where he erroneously identifies a variety of *suturalis* Pfr. with *lineata*; in this he followed Reeves' figure. In a letter from Mr. Brazier to Dr. Hartman, June 18, 1885, he says: "I doubt very much of *P. lineata* Less. being found at Oualan. I was there fourteen days and went once across the island from Cheobel (Chabroul?) Harbor to Coquelle Harbor, and never saw anything like Lesson's figure. I found all other species of *Helices* that were described by Pease before I ever went there."

Writing June 11, 1887, Mr. Layard observes: "If Oualan is in the Fijis, it should be Ovalau, on which Levuka is situated." Probably Dr. Hartman adopted this suggestion, for in his MS. work the habitat given for the species is "Ovalau." It should be noted, however, that Lesson described at least one other species (*Partula rufa*) from Oualan, where it was subsequently found by Brazier.

4211. **Partula suturalis** Pfr. "*Partula vexillum* Pease, Moorea Isld." Seven specimens, five dextral and two sinistral. All are pale yellowish with two or three narrow reddish-brown bands, and without strigations; the parietal tooth is present in all the examples. The dextral specimens closely resemble some included under the var. *P. alternata* Pse (see No. 4213). According to Dr. Hartman (MS. catalogue) the type examples of *P. suturalis* Pfr. are like *P. vexillum* (dextral form?) and *vexillum* is given as a synonym of *suturalis*, which has precedence, in the later Hartman catalogues. Mr. Garrett, Feb. 10, 1879, remarks that *vexillum*, *elongata* (= *teniata* var.) and *sim-*

ulans (= *teniata* var.) were found associated in a valley ; and he says that sinistral *rexillum* are rare as compared with the dextral form. Apparently he uses the name *rexillum* in a broader sense, including *alternata*. None of the other varieties of *suturalis* are represented in the Hartman collection by sinistral examples.

4212. "*Partula alternata* Pse. (type) (typical, H. H. S.), Moorea." Seventeen specimens, all dextral and generally with a small parietal tooth. Six are pale, streaked obliquely with brown, and with only traces of bands ; eight have from one to three spiral bands, the strigations being less obvious ; three are brown by the coalescence of the strigations. The name is a MS. one. It is given as a synonym or variety of *P. suturalis* Pfr. in all Dr. Hartman's catalogues.

4213. "*Partula alternata* Pse., Moorea." Nine specimens, all dextral, variously banded and strigate ; in some the dark bands are so broad that they cover the greater part of the shell. One has two bands, and the strigations are obsolete : this cannot be distinguished from the dextral form of *rexillum*, No. 4211.

4214. "*Partula alternata* Pse., Moorea, Garrett datum." Nine dextral examples, variously banded and strigate.

4215. "*Partula alternata* Pse., Moorea." Nine specimens, all dextral. Only one is banded ; one is small, yellow, without obvious bands or strigations ; seven are elongate and more or less strigate obliquely.

4216. "*Partula alternata* Pse., Moorea." Two dextral specimens, one a short form of the ordinary streaked variety, with traces of a pale spiral band, the other small, white, obsoletely strigate with brown. Neither shows the parietal tooth.

4217. "*Partula alternata* Pse., abnormal." One dextral specimen of the *rexillum* variety, without the parietal tooth and with the spire contorted and depressed.

4218. "*Partula alternata* Pse. var., Moorea, Marquesas." (Moorea or Morea or Eimeo is one of the Society Islands, H. H. S.) Three specimens of a straw colored variety with obsolete strigations, and white at the suture ; two are small and short, with a faint peripheral dark line ; the third is elongate, without the line, and without a parietal tooth.

4219. "*Partula strigosa* Pfr., Moorea." Five specimens, all pale with oblique strigations ; one has traces of dark spiral bands. Included among the synonyms of *P. suturalis* Pfr. in all Dr. Hartman's catalogues.

4220. "*Partula ornata* Anth'y MS., Moorea." Five specimens, all pale, conspicuously strigate with brown: one has faint traces of spiral bands. Evidently a variety of *P. strigosa* Pfr., = *saturalis*, var.; but the MS. name does not occur in Dr. Hartman's catalogues.

4221. "***Partula mooreana*** W. D. Hartman (type), Moorea Isl., Marguesas" (not "Marguesas," but Society Islands, H. H. S.). Nine specimens, three of which are banded. The types used by Dr. Hartman for his description of the species, Proc. Acad. Nat. Sc. Phila., 1880, p. 229. A figure of the species was published by Garrett, Journ. Acad. Nat. Sc. Phila., IX, Pl. III, Fig. 55. The habitat given by Dr. Hartman in his MS. catalogue is "Vaianassa Valley, Moorea." In his original description he states that the shell is from the Vaianai Valley, but this is distinctly contradicted by a letter from Mr. Garrett, Feb. 10, 1879: "The complete peristome and well developed parietal tooth prove the reversed Moorea *Partula* to be full grown. Your suggestion in regard to its being a hybrid is more to the point, and when I first discovered it I nearly came to the same conclusion. The *vexillum* (= *saturalis* Pfr.), *elongata* and *simulans* (*tæniata* vars.) were found associated in a valley (elsewhere stated to be the Vaianai Valley) two miles north of the habitat of the reversed species, and I did not notice a single hybrid between the former and the two latter. We must also take into consideration that sinistral *vexillum* are very rare as compared with the dextral forms; and the specimens under consideration are *all* reversed and very uniform in color and fasciation. Without positive proof I can not see how it can be considered a hybrid."

4222. "***Partula producta*** Pse. (type) (typical, H. H. S.), Tahiti, Coll. Pse." Seven specimens, variously banded; in one the bands coalesce, so that the entire shell is dark chestnut colored.

4223. "***Partula tæniata*** Mörch, Moorea." Fourteen specimens, all banded, but some very faintly. In Dr. Hartman's catalogue of the Genus *Partula*, 1881, *tæniata* and its varieties are given as synonyms of *spadicea* Rve.; in later catalogues the preference is given to *tæniata*. Writing Feb. 10, 1879, Mr. Garrett says: "Pfeiffer copied Mörch's description (of *tæniata*), which does not harmonize as well as I could wish with the Moorea shell. His "*transversim irregulariter plicata*" may possibly refer to the longitudinal lines of growth, and his "*longitudinator striis undulatis*" expresses the spiral incised lines. Mr. Pease excluded *tæniata* (from his list of Polynesian land shells, Proc. Zool. Soc., Lond., 1871) on the supposition that it was a Viti

species, as mentioned by Mörch. No doubt the Cumingian collection has the Moorea shell under Mörch's name." Mr. Pease wrote to Garrett, Apr. 21, 1870: "*P. tæniata* Mörch, though credited to the Fijis, does not belong there, as Mörch writes me" (letter from Garrett to Dr. Hartman, March 15, 1882). Hartman (Proc. Acad. Nat. Sc. Phila., 1885, p. 215) observes: "Mörch's habitat, *Fiji Isles*, for *tæniata*, is probably an error, as his examples were purchased of a whale fisher." In one of Mr. Garrett's letters to Dr. Hartman (March 15, 1882,) he says: "I send you three examples of a Moorea *Partula* which agrees well with *P. tæniata* in having the white bands."

4224. "*Partula simulans* Pse. (type) (typical, H. H. S.), Coll. Pse., Moorea." Twelve specimens. They agree in form and size with *P. tæniata* (No. 4223), but only one is banded, the others being uniform brownish or pale, in some examples with obsolete strigations; perhaps the banded specimen was included for comparison. The name is included as a variety of *P. tæniata* in Dr. Hartman's published catalogues, but it was omitted, no doubt by an oversight, from his MS. work. Mr. Garrett wrote, Feb. 10, 1879: "Carpenter considered *simulans* to be a variety of *tæniata*. I suppose Mr. Pease wrote to Mr. Mörch in regard to the shell and from his reply was convinced that it could not be *simulans*, so he published it as new. In his list of Polynesian shells (Proc. Zoöl. Soc. Lond., 1871) he neither records it nor refers it to any other species." Mr. Garrett observes that it was found in a valley, associated with *elongata* and *rexillum* (= *suturalis* Pfr.).

4225. "*Partula simulans* Pse., Moorea." Four specimens, two light brown and the others white with faint spiral bands.

4226. "*Partula simulans* Pse., Moorea (Garr. dat.)." Two specimens of an elongate, tapering, thin form, approaching *P. elongata*; one is white and the other light brown from oblique strigations. The latter may be an immature form of the variety or hybrid, *P. striolata* Pse. (No. 4228).

4227. "*Partula spadicea* Rve., Eimeo, Moorea." Fourteen specimens, all white or very pale brownish, in form approaching the typical *tæniata* but generally shorter. This is united with *tæniata* in all Dr. Hartman's catalogues. See No. 4348.

It appears that Pease, Cox and others referred one of the white Solomon Island shells to *spadicea*. In memoranda which Dr. Cox

sent to Garrett, about 1881, he states that *spadicea* is "from Eddystone Islands, Solomon Islands, and may be from other islands of the same group." Garrett, in sending the memoranda to Dr. Hartman, remarks: "I note that he is sure that *spadicea* is from the Solomon Islands. In a letter received from Mr. Pease, dated some two years before his death, he states that he has received *spadicea* from the Solomon Islands." Again, writing March 15, 1892, Garrett quotes from Pease's letter of April 21, 1870, "*spadicea* Rve. I have found among the Solomon Island species. It does not belong to the Marguesas." The Solomon Island shell referred to is no doubt *P. hastula* Hartman. Mr. Brazier wrote to Dr. Hartman that Pease considered that shell identical with *P. spadicea* (see Proc. Acad. Nat. Sc. Phila., 1886, p. 33).

Mr. Garrett wrote to Dr. Hartman, Feb. 10, 1879: "*P. spadicea* Rve., 'Marguesas.' The figure in his monograph looks very much like some of the forms of *simulans*. You can ascertain whether it is a Moorea shell or not, as you have every species inhabiting that island." It appears that Dr. Hartman sent specimens to the British Museum for comparison (see Proc. Acad. Nat. Sc. Phila., 1885, p. 215).

4228. "*Partula striolata* Pse., Moorea, Coll. Pse." Twelve specimens, five of which are unicolored, pale brown; the others are pale with more or less obvious strigations. The name is placed among the synonyms of *P. teniata* in all Dr. Hartman's catalogues, but in his MS. work he observes: "The variety *P. striolata* Pse. is probably a hybrid between some of the varieties and *P. suturalis* Pfr." Compare No. 4226.

4229. "*Partula nucleola* Pse. MS., Moorea, Coll. Pse." Fourteen specimens. The variety is shorter and more solid than the typical *teniata* or any of its varieties represented in the Hartman collection. Four are dark chestnut-colored; four are whitish and banded (in color like the typical *teniata*) and the others are ashy or pale. This name is included among the synonyms of *P. teniata* in Dr. Hartman's published catalogues, but is omitted in his MS. work, probably by an oversight.

4230. "*Partula elongata* Pse. (type) (typical, H. H. S.), Moorea, Coll. Pse." Thirteen specimens. Three are white with spiral bands similar to those of *P. teniata* Mörch; the others are pale brownish to white, two showing faint strigations. *P. elongata* is treated as a variety

of *P. tæniata* in all Dr. Hartman's catalogues. Mr. Garrett considered it distinct. Writing Feb. 10, 1879, he stated that he found it in a valley, associated with *vexillum* (= *suturalis*) and *simulans*, and remarks: "Carpenter referred *elongata* to *lineata* var. (presumably Reeve's *lineata*, = *suturalis*) and says it closely resembles a large *gracilis* (= *attenuata* Pse., No. 4235). He was right in the latter conclusion; but he might with almost equal propriety have referred it to *otaheitanæ* as to *lineata*. Now you write that it is considered to be identical with *repanda* Pfr., a New Hebrides species, an entirely different shell according to the diagnosis."

4231. "*Partula elongata* Pse., Moorea." Four specimens, all white. Two are considerably shorter than the others.

4232. "*Partula elongata* Pse. (vars.), Eimeo." The locality name (Eimeo, Moorea) is on a slip pasted to the card, and perhaps in Geale's handwriting. Five specimens. Two are brown, one cinereous and two white with the apex faintly rosy.

4233. "**Partula carteriensis** Quoy et Gaimard, Carteret Isl., New Ireland." Seven specimens, varying in color from pale cinereous brownish to white. Presumably these shells, or some of them, are from the Cox collection. In memoranda written by Dr. Cox, about 1881, he says the species is from Port Carteret, New Ireland.

4234. "**Partula hyalina** Brod. (type) (typical, H. H. S.), Tahiti." Twelve specimens, including one immature and one old shell with the lip greatly thickened. In a catalogue of *Partula* (undated) which Mr. Garrett sent to Dr. Hartman he gives the localities for this species: "Tahiti (Garr.), Rurutu (De Gage), Mangaia (Garr.). Dr. Hartman, in his MS. work, notes these and adds: "Tumaco (Cuming)." The shells are all white. See No. 4348.

4235. "**Partula attenuata** Pse. (type) (typical, H. H. S.), Raiatea, Coll. Pse." Twelve specimens. Mr. Garrett (MS. catalogue) states that he has collected this species on Tahiti and Raiatea.

4236. "**Partula lirata** Mousson, Lanthali" (probably the locality is Lantala, or Lanthala, Fiji Is.). Six specimens, varying in color from light brownish to white. Dr. Hartman, in Proc. Acad. Nat. Sc. Phila., 1885, p. 216, gives the habitat "Tavinu, Viti Islands" and elsewhere "Tavinu or Somma Is." Mr. Layard, writing June 11, 1887, says: "There are no such places. I suspect the islands of Taviuni and Loma-loma are meant. I collected for six weeks on the first named and for a day or two on the latter and never saw the shell,

but I found it plentiful on Maug-o (written Mago by the missionaries).'' Garrett in his MS. catalogue of *Partula* gives ''Vanua Balavu (Garr.), Lantala (Garr.), Taviuni (Garr.). In Proc. Zoöl. Soc. Lond., 1887, p. 187, he gives these localities and adds that Dr. Gräffe found it on Kanathia and Oneata; he says, it lives on foliage near the seashore. Presumably these specimens were obtained from Mr. Garrett.

4237. ''***Partula lævigata*** Pfr., Coll. Geale.'' On the back of the card is written ''L. 18, W. 8. Don't think this *lævigata*.'' The numbers are for length and width (not including aperture) in millimeters. The measurements for this species given in Dr. Hartman's MS. Catalogue (following Pfeiffer?) are ''L. 19, D. 9,'' and ''Hab. ?'' agrees with the label, which gives no locality. The word ''*lævigata*'' on the face of the card appears to have been imperfectly erased. Mr. Geale accompanied Hugh Cuming in Polynesia. One specimen. It is quite closely allied to *P. flexuosa* Hartm. (No. 4238) but is shorter, and the aperture is not so broad and rounded; color pale with a brownish tint and an obsolete peripheral band.

The pencil notes on the back of this card and of No. 4238 appear to have been made at the same time, perhaps when Dr. Hartman left specimens for comparison with E. A. Smith of the British Museum, (see Proc. Acad. Nat. Sc. Phila., 1885, pp. 205-206). Presumably the name ''*lævigata*'' was partly erased at that time. No reference to this specimen has been found in the Hartmann correspondence, but in a letter from E. A. Smith, Oct. 2, 1884, he speaks of returning a number of shells. As the label is still perfectly legible, it may be presumed that Dr. Hartman allowed it to stand, after being assured of the correctness of the identification. In Proc. Acad. Nat. Sc. Phila., 1885, p. 217, the species is marked with a †, indicating that there is an example in the Hartman collection.

NOTES.—''***Partula micans*** Pfr., Proc. Zoöl. Soc., 1852, p. 138.'' This species is not represented in the Hartman collection. It is noted in his published catalogues, but in his MS. work it is not mentioned either as a valid species or a synonym. Mr. Garrett, writing May 22, 1882, suggested that it might be the same as *P. cinerea* Albers.

Partula cinerea Albers. This Solomon Island species is not represented in the Hartman collection. At one time Dr. Hartman supposed it might be the shell which he subsequently described as *P. flexuosa* (No. 4238). Mr. Garrett, writing May 22, 1882, suggested that it might be the same as *P. micans* Pfr., the measurements being the

same. In Dr. Hartman's MS. work the name is placed next to *P. levigata*. See under No. 4243.

Partula grisea Less., New Guinea (originally described as a *Bulimus*). Not in the Hartman collection, and it appears to be a lost species. Dr. Hartman, in his MS. work, places it after *P. cinerea* Albers. Mr. Garrett wrote, May 25, 1882: "Both Lesson's and Albers' descriptions of *grisea*, from New Guinea, most certainly do not coincide with *micans* or *coxi*. It agrees more nearly with the Solomon Island *Partula* which I last sent" (probably *P. flexuosa* Hartm., No. 4238).

4238. "**Partula flexuosa** Hartm. (type), Solomon Isls. Cox datum." On the back of the card is written: "This shell we have been calling *cinerea*. Is it that species? L. 15-20, W. 8-9." The figures are measurements of length and width in millimeters. For the pencil note see No. 4237 and Proc. Acad. Nat. Sc. Phila., 1885, p. 204. Three specimens and a photograph of another pasted to the same card, the word "type" being written underneath the photograph. Types or cotypes of Dr. Hartman's description and figure, Proc. Acad. Nat. Sc. Phila., 1885, p. 204. The habitat given is "St. George's and Eddystone Islands, Solomon Islands." The shells were received from Dr. Cox through Mr. Garrett. Perhaps the photograph represents a specimen which was returned to Dr. Cox, though it corresponds closely to one of the examples on the card. Dr. Hartman's figure does not agree well with the photograph.

4239. "**Partula hastula** Hartm., Simbo or Eddystone Isld., Sol. Islds." On the back of the card is written: "No. 18 of Brazier, Simbo, Eddystone Isld. Marked *spadicea* by Pease. No." (see notes under No. 4227). Five specimens. Types of Dr. Hartman's description, Proc. Acad. Nat. Sc. Phila., 1886, p. 33, Pl. II, Fig. 9. The habitat given with the description is "Erromango Island, Solomon Islands." In the MS. work this is changed to "Erromango Island New Hebrides," in accordance with a letter from Mr. Layard, June 11, 1887, in which he points out the mistake. In memoranda by Dr. Cox, sent to Mr. Garrett and copied by the latter for Dr. Hartman, the habitat of *spadicea* is given as "Eddystone Island, Solomon Islands"; hence, no doubt, the locality given on the label. The shells were received from Mr. Brazier, who had sent many *Partulas* to Pease; he may have sent this species with an erroneous label, or some similar species from the Solomon Islands.

4240. "**Partula incurvum** Hartm., Rubiana Isl., Solomon Isls." Two specimens and a photograph mounted on the same card. Collected by Mr. Brazier, and the types from which Dr. Hartman drew his description, Proc. Acad. Nat. Sc. Phila., 1886, p. 31, Pl. II, Fig. 3 (corresponding to the photograph). The photograph appears to correspond to the larger and paler example, but possibly represents another which was returned to Brazier.

NOTE.—**Partula woodlarkiana** Hartm., Proc. Acad. Nat. Sc. Phila., 1886, p. 33. This species is represented in the Hartman collection only by two photographs of the same example (No. 4334) mounted on a card and labeled "**Partula woodlarkiana** Hartm., New Guinea, Woodlark Isld." On the back of the card is written: "The shell was returned to Brazier as requested." In his MS. work Dr. Hartman places this species next to *P. incurvum* Hartm.

4241. "**Partula regularis** Hartm., Savu or Galeria Isl., Solomon Isls." Two specimens, collected by Brazier, and the types of Dr. Hartman's description, Proc. Acad. Nat. Sc. Phila., 1886, p. 31, Pl. II, Fig. 4 (apparently the shorter of the two).

NOTE.—**Partula similis** Hartm., Proc. Acad. Nat. Sc. Phila., 1886, p. 30, Pl. II, Fig. 1. This species is not represented in the Hartman collection. Probably the type was returned to Mr. Brazier. In Dr. Hartman's MS. work it is placed after *P. regularis* Hartm.

4242. "**Partula corneola** Hartm., Eimeo = Moorea." On the back of the card is written: "Eimeo, Geale, one of the Society Islands. Not in B. Mus. *Partula corneola* Hartm., unpublished." Two specimens, types of Dr. Hartman's description, Proc. Acad. Nat. Sc. Phila., 1886, p. 32, Pl. II, Fig. 6 (the larger of the two). Dr. Hartman observes, *loc. cit.*, "This shell is not found in the British Museum or the Jardin des Plantes and I have only met with it twice in private collections." The habitat, Moorea, needs confirmation and is given with doubt by Dr. Hartman in his description; he remarks that the shell possesses the dome-like apex (aperture?) of the Solomon Island species. Mr. Geale was the companion of Hugh Cuming in Polynesia; Cuming himself was notoriously uncertain in his locality labels, and Geale did not always know where his shells were obtained. Garrett, who collected extensively in the Society Islands, sent large suites of Moorea shells to Dr. Hartman. In one of his letters he states that these included all the *Partulas* from that island.

In the Hartman collection there are three photographs (mounted on one card), two of the figured specimens of *P. cornicola* and one of the other example (No. 4343¹²).

4243. "**Partula minor** Hartm., Erromango Isld., Dr. Turner, Coll. Cox." A slip pasted on the back of the card has, in Dr. Cox's handwriting: "Collected by Turner at Erromango, Cox. *P. cinerea* Albers." Two specimens, types of Dr. Hartman's description, Proc. Acad. Nat. Sc. Phila., 1886, p. 31, Pl. II, Fig. 5 (the larger of the two). Probably Dr. Cox alludes to this shell in his memoranda written about 1881: "*P. cinerea* Albers is said to be from the Solomon Isles and I send you specimens corresponding closely to the description of that species, but I feel *very* doubtful about it."

The habitat given with the description is Erromango Island, Solomon Islands. As Layard pointed out, the island is not one of the Solomon Islands, but in the New Hebrides group; the mistake is corrected in Dr. Hartman's MS. work.

4244. "**Partula concinna** Pse., Tanna (Tanna, H. H. S.), New Hebrides." On the back of the card is written, "Purchased from the Taylor collection. Was labeled new species, N. Caledonia. This is doubtless *concinna* Pse., New Hebrides." One specimen, evidently the original of the figure published by Dr. Hartman, Proc. Acad. Nat. Sc. Phila., 1886, Pl. II, Fig. 16.

4245. "**Partula coxi** Angas, Ysabel Isld., Solomon Islds., Brazier datum." On the back of the card is written: "Brazier datum. He says this is the species for which he proposed the name *coxi*, Angas MS. Garrett thinks it *pellucida* Pse. Brazier gave Pease this species from the same place." See Dr. Hartman's observations, Proc. Acad. Nat. Sc. Phila., 1885, p. 217, and 1886, p. 32. Seven specimens. These are the types of the species, first described by Dr. Hartman, Proc. Acad. Nat. Sc. Phila., 1886, p. 32, Pl. II, Fig. 7. This species and *P. pellucida* Pse. were collected by Brazier; he gave specimens to Dr. Cox, who appears to have confounded them. In memoranda written by Dr. Cox, about 1881 he says that *P. coxi* was named from specimens which he sent to Angas. "It is from Solomon Islands, from several of them, but I cannot depend upon my information to decide exactly which" (see notes under No. 4246). Dr. Hartman says that his specimens were presented by Brazier and were from the original lot collected by him (Proc. Acad. Nat. Sc. Phila., 1885, p. 217). Mr. E. A. Smith, of the British Museum, agreed with

Dr. Hartman in his identification of this species with *P. coxi* Angas MS. (letter from Smith, Oct. 2, 1884). It was *P. pellucida*, not *P. coxi*, which Brazier gave to Pease.

4246. "**Partula pellucida** Pse., Ysabel Isld., Solomon Islds. (Coll. Cox)." On the back of the card, written with pencil and partly erased, but still legible: "This is the type *nitens*, compared with the example in the British Museum. Young examples." Over this is written in ink: "This is *pellucida* from Brazier's type examples." Three specimens and two photographs mounted on the same card. The photographs agree well with two of the specimens on the card, but may represent other examples which were returned to Brazier. One of them is the original of the figure published by Dr. Hartman, Proc. Acad. Nat. Sc. Phila., 1886, Pl. II, Fig. 17. Dr. Cox sent the specimens to Dr. Hartman, labeled *P. coxi* Angas MS. *P. coxi* and *pellucida*, were collected about the same time by Brazier, and perhaps on the same island. Brazier sent specimens of *pellucida* to Pease, who described the species in Proc. Zoöl. Soc. Lond., 1871, p. 457, but did not figure it. He gave specimens of both species to Dr. Cox, who evidently confounded them, for Angas gave the MS. name *coxi* to specimens which Dr. Cox had sent him, and the latter sent specimens of *pellucida* to Dr. Hartman labeled *coxi*. He gave the true *coxi*, properly labeled, to Garrett, as appears from Garrett's letter of Jan. 25, 1885: "The *P. coxi* you sent is exactly the same as I received from the Doctor (Cox). The small species you refer to *micans* is probably *pellucida* Pse. His 'granulated surface' is only the incremental striae cutting the spiral lines." The specimens of *pellucida* were, in fact, referred to *micans* by E. A. Smith, of the British Museum, when Dr. Hartman sent them to him for comparison in 1879; he acknowledged his mistake later (letter of Oct. 2, 1884) and Dr. Hartman accepted Garrett's suggestion that the shells were identical with *P. pellucida* Pse. (see his observations under *P. coxi*, Proc. Acad. Nat. Sc. Phila., 1886, p. 32). Garrett had specimens of *pellucida* in his own collection.

There is equal confusion and more uncertainty regarding the habitats of the two species. The specimens of both are labeled "Ysabel Island" in the Hartman collection, but Dr. Hartman gives this locality only for *P. coxi* in Proc. Acad. Nat. Sc. Phila., 1885, p. 217, and in his MS. catalogue; in the same papers *P. pellucida* is said to be from Guadalcanar Island. Garrett gives "Guadalcanar

Island (Brazier)," but he relied solely on the habitat given by Pease.

NOTES.—*Partula hartmani* E. A. Smith. This species is not represented in the Hartman collection.

Partula perlucens Hartm., Proc. Acad. Nat. Sc. Phila., 1886, p. 31, Pl. II, Fig. 2. This species is not represented in the Hartman collection. The two examples from which it was described were received from Mr. Brazier, and probably were returned to him.

4247. "*Partula kubaryi* Hartm. (type), Karakaut Archipelago, Bismarck, N. Britain." One specimen and an embryonic shell. The type of Dr. Hartman's description, Proc. Acad. Nat. Sc. Phila., 1890, p. 284, Pl. III, Fig. 3. It was "received from Mr. Kubary through Dr. Möllendorff, of Manilla."

4248. "*Partula turgida* Pse., Raiatea, Garrett dat. Very rare." One specimen. It was sent to Dr. Hartman in 1881, and Mr. Garrett states that it was one of two which he had in his own collection. In Mr. Garrett's MS. catalogue he assigns this species to Raiatea and stated that he had collected it there. In Dr. Hartman's catalogue, "Nautilus," Jan., 1893, the species is erroneously entered as "*P. turgida* Pfr."

4249. "*Partula arguta* Pse., Huaheine." Three specimens. The locality given in Dr. Hartman's MS. catalogue is Raiatea, but probably this was an error; Garrett, who resided on Huaheine, gives that island as the habitat of the shell both in his published paper on the Society Island land shells and in his MS. catalogue, where he states that he had collected it. Presumably these specimens were received from Garrett. The Huaheine habitat is given in Dr. Hartman's published catalogue, Proc. Acad. Nat. Sc. Phila., 1885, p. 218.

4250. "*Partula annectens* Pse., Huaheine." Three specimens; presumably received from Mr. Garrett. In his MS. catalogue Garrett gives the habitat Huaheine and states that he had collected the shell there. Pease, Proc. Zool. Soc. Lond., 1871, p. 73, credits it to Tahiti.

NOTE.—*Partula minuta* Pfr. This species is not represented by specimens in the Hartman collection. There is a drawing, by E. A. Smith, of the type in the British Museum (No. 4345). Garrett, writing November, 25, 1883, says that the shell is unknown to him.

4251. "*Partula ganymedes* Pfr. (typical), Dominique, Marquesas." Six specimens, all with a chestnut-colored peripheral band.

Mr. Garrett, in his MS. catalogue, gives the habitats "Dominique and Taiwate Islands, Marquesas," and states that he had collected it. In a letter, November 24, 1879, he observes: "When Pfeiffer described *P. ganymedes* in Proc. Zoöl. Soc., p. 39, 1846, he recorded it as from the Society Islands. It was brought to Tahiti by the missionaries."

4252. "*Partula ganymedes* Pfr., Dominique, Marquesas." Seven specimens. Two are of the typical variety (No. 4251): two are smaller, brown on the basal half of the body whorl; two are still smaller and brown except a narrow white band below the suture; one is entirely white.

4253. "*Partula ganymedes* Pfr. var., Dominique, Marquesas, Coll. Geale." Six specimens, varying in size. Three are brown with a white band below the suture, and in one of them the body whorl is angulated; two are pale cinereous brown with the upper part of the body whorl white; one is pale with a narrow peripheral band.

4254. "*Partula fasciata* Pse., Dominique, Marquesas." Eight specimens. Smaller than the typical *ganymedes*, white with a narrow peripheral band, or with the lower part of the body whorl brown or ashy, the band obscurely visible on the darker ground. *P. fasciata* is treated as a variety of *P. ganymedes* in all Dr. Hartman's catalogues.

NOTE.—*Partula gonocheila* Pfr. This doubtful species, said to be from the Navigator Islands, is not represented by specimens in the Hartman collection. There is a drawing of the (supposed) type in British Museum, by E. A. Smith (No. 4345). Mr. Garrett, who saw this drawing, wrote: "*gonocheila* is undoubtedly a Marquesas species, and has no resemblance to Reeve's figure, and differs entirely from any form of *ganymedes*." See notes under Nos. 4257 and 4265, and Dr. Hartman's observations, Proc. Acad. Nat. Sc. Phil., 1885, pp. 219, 220. Garrett does not mention the species in his paper on the terrestrial mollusca of the Navigator Islands.

4255. "*Partula recta* Pse. (typical), Maui and Nukuhiwa, Marquesas." On the back of the card is written: "These are exactly like the Pease types." Four specimens, one with two embryonic shells in the mouth. The examples are pale brown to whitish, and are larger and thicker than the other varieties referred to *P. recta*.

4256. "*Partula recta* Pse. (white var., typical), Maui and Nukuhiwa, Marquesas, Coll. Pse." Eight specimens, all white. They are smaller, shorter, more glabrous and thinner than the typical *recta*,

No. 4255, agreeing in this respect with No. 4257. They vary considerably in size.

4257. *Partula recta* Pse., varieties, Nukuihiwa and Mauui, Marquesas." Nine specimens, varying greatly in size. All are smaller, shorter, more inflated and thinner than the typical *recta*, No. 4255, and the aperture is much broader; color pale brownish to whitish, sometimes a little darker on the the lower half of the body whorl. The examples of medium size agree well with a drawing by E. A. Smith of the (supposed) type of *P. gonocheila* Pfr. in the British Museum (No. 4345). Dr. Hartman noticed this resemblance (Proc. Acad. Nat. Sc. Phila., 1885, pp. 219, 220) but remarks that the British Museum examples do not agree with Reeve's figure of *gonocheila*, which = *ganymedes* Pfr.

4258. "*Partula strigata* Pse. (typical), Nukuihiwa and Mauui, Marquesas." On the back of the card is written: "This shell is only a dark var. of *recta*." Four specimens, all castaneous or bay-brown, and varying somewhat in size and form. Three of them approach the typical *recta*, No. 4255, in form, but are not so large and heavy; the other is shorter and more inflated, resembling in form some examples of No. 4257. In his first catalogue of Partula, 1881, Dr. Hartman makes *P. strigata* a synonym of *P. varia* Brod., a Society Islands species (see No. 4274); in his later catalogues he treats it as a variety of *P. recta*.

4259. "*Partula strigata* Pse. = *recta* Pse. (yellow variety), Nukuihiwa and Mauui, Marquesas." Ten specimens, pale yellowish-brown or white, and corresponding closely to some of the larger specimens included under No. 4257. See note under No. 4274.

NOTE.—**Partula repanda** Pfr. This species, said to be from New Hebrides, is not represented by specimens in the Hartman collection. There is a drawing by E. A. Smith of the type *repanda* in the British Museum (No. 4345). Mr. Garrett, who saw this drawing, remarked (February 25, 1883) that it resembled some forms of *teniata*. Dr. Hartman says (Proc. Acad. Nat. Sc. Phila., 1885, p. 220) that some of the light-colored varieties of *recta* in the Pease duplicates resemble *repanda*, but a comparison with the type *repanda* in the British Museum proved them to be distinct.

4260. "**Partula actor** Albers = *zebrina* Gould, Samoa." On the back of the card is written: "These shells are from the Belcher expedition in voyage Sulphur which touched at Samoa." Four specimens.

In Proc. Acad. Nat. Sc. Phila., 1885, p. 220, Dr. Hartman states that the shells were from the collection of the late Mr. Taylor, of England, and that they were obtained by the Belcher expedition, voyage Samarang; Dr. Hartman's copy of the paper has the word "Samarang" erased and "Sulphur" substituted.

4261. "**Partula tryoni** Hartm. (type), Solomon Isles." One specimen, type of the description and figure, Proc. Acad. Nat. Sc. Phila., 1885, p. 204. The shell was originally from the Cox collection. Dr. Cox sent a specimen to Garrett, who enclosed a pencil drawing of it (No. 4346) in a letter to Dr. Hartman, March 15, 1882. Mr. Garrett thought it might be *P. actor* Albers. "The measurements accord exactly. The color of the single example is fulvous white with opaque white irregular spots and short lines. The base is not umbilicated but conspicuously rimate. The tip broadly and evenly expanded, thin and flat." Subsequently Mr. Garret obtained another example from Dr. Cox and sent it to Dr. Hartman, who described it.

4262. "**Partula inflata** Reeve, Dominique, Marquesas." Five specimens. Four are brown, white around the umbilicus and on the upper part of the body whorl; one is white. The habitat given in Dr. Hartman's MS. work is "Marquesas." Garrett, in his MS. catalogue, gives "Dominique, Taiwate, Marquesas (Garr.)." In his published catalogues Dr. Hartman places this species after *P. ganymedes*, which appears to be its proper position; in his MS. work he places it at the head of a group including *P. magdelinæ*, *bellula* and *decussatula*.

4263. "**Partula magdelinæ** Hartm. (type), Magdelina Isl., Marquesas." On the back of the card is written: "*Partula magdelinæ*, Magdelina Island, Marquesas, Garr. New." Four specimens. Types of Dr. Hartman's description and figure, Proc. Acad. Nat. Sc. Phila., 1885, p. 203. In the "Nautilus," Jan., 1893, p. 98, and in his MS. work, Dr. Hartman has changed the name to *magdelina*, perhaps by an oversight. Four specimens, obtained from Mr. Garrett, who collected them, as appears from his MS. catalogue, No. 115.

4264. "**Partula bellula** Hartm., Wapo Island, Marquesas Islands." On the back of the card is written: "Only two of this species found, one at Dominique at an altitude of 2,500 ft., the other at nearly the same altitude at Wapo Island. *P. bellule* (sic) Hartm." One specimen, received from Mr. Garret and collected by him, as appears from

his MS. catalogue, No. 116, where he gives the habitat as "Woapo, Marquesas." Type of Dr. Hartman's description and figure, Proc. Acad. Nat. Sc. Phila., 1885, p. 203. It is stated that Mr. Garrett sent a similar shell from Dominique to the Museum Godeffroy.

4265. "**Partula decussatula** Pfr. (type) (typical, H. H. S.), Dominique, Marquesas." Twelve specimens, varying in size. Most of them are somewhat pellucid, with only traces of a peripheral line; but three large ones and one smaller are subopaque, white at the suture, and on two of these the peripheral band is well marked; they look like miniature examples of *P. ganymedes*, No. 4251. Mr. Garrett wrote (Sept. 5, 1882), that he had sent specimens of *P. decussatula* to Mr. Taylor, who had them examined in London; they were identified with *gonocheila* Pfr. He repeats this statement in another letter, Feb. 12, 1883. With the Hartman collection there is a drawing, by E. A. Smith, of the type *decussatula* in the British Museum (No. 4345). Mr. Smith wrote underneath the drawing: "Differs from *gonocheila* (Brit. Mus.) in spire being shorter, lips less reflexed and extremities more converging—mouth large." Mr. Garrett, after seeing this drawing, wrote (Nov. 25, 1883): "The drawing of *decussatula* proves the correctness of your determination of that species. The figure is much better than Reeve's." Perhaps Garrett himself collected these shells and sent them to Dr. Hartman, who determined them; in the Garrett MS. catalogue, No. 114, which he collected at Dominique, is unidentified.

4266. "**Partula rosea** Brod., Huaheine." Twelve specimens, varying in form from elongate to subobese. Four are rosy (one with an obscure yellow peripheral band); one is rosy with the lower part of the body whorl yellow; two are purple-brown, shining, with a yellow band (= *estalliana* Garr. MS., No. 4271); one is entirely cinereous brown; one is short, purple-brown with a broad yellow band; one is salmon colored with a broad yellow band; two are shining reddish, and one of these has a yellow band.

4267. "*Partula rosea* Brod. (abnormal), Huaheine." One specimen of the *purpurascens* variety, with the body whorl and lip distorted around the umbilicus.

4268. "*Partula purpurascens* Pfr., Huaheine." Seven specimens, dark purplish-brown, sometimes with a reddish spire, interior purple, lip lilac-tinted. *P. purpurascens* is treated as a variety or synonym of *P. rosea* in all Dr. Hartman's catalogues.

4269. "*Partula cognata* Pse. MS., Huaheine." Four specimens on one card. The two central ones are orange or yellow, shining, obscurely banded and with a purple spire; these appear to be the var. *cognata*. The one on the left, with "*rosca*" marked underneath, is the same as *P. purpurascens*, No. 4268. The smaller one on the right, with "*varia*" marked underneath, is the same as *P. varia* Brod., No. 4273, though the mouth is unusually small for that species. Possibly the card indicates that Dr. Hartman suspected *cognata* to be a hybrid between *rosca* and *varia*. The two central shells are like *rosca* in size and form, but resemble *varia* in color. *P. cognata*, however, is given as a synonym of *P. rosca* in all Dr. Hartman's catalogues and in the MS. catalogue of Garrett.

4270. "*Partula cognata* Pse. MS. (typical), Huaheine." Eight specimens, all somewhat shining. One is elongate, white, purple at the sutures; one is unicolored, yellow; three are yellow, orange at the suture and on the lower part of the body whorl, the color appearing on the lip; three are yellow, purple at the suture and on the lower part of the body whorl and lip (= *estalliana* Garr. MS., No. 4271).

4271. "*Partula estalliana* Garr. MS., southeast part of Huaheine." Fourteen specimens, three of which are albinos; the others are either purple or orange, with a broad pale or yellow band, which appears on the upper part of the lip. These shells do not essentially differ from most of the examples included under No. 4270. The name does not appear in Dr. Hartman's published catalogues, but in his MS. work it is given as a synonym of *P. rosca* Brod. No doubt the specimens were received from Mr. Garrett.

4272. ***Partula calypso*** Semp. "*P. thetis* O. Semp., Peleliu, Mus. Godeffroy." One specimen. Dr. Hartman considered this a synonym of *P. calypso* O. Semp., from the same island. See Proc. Acad. Nat. Sc. Phila., 1885, p. 218. In his MS. work he remarks that the species is an aberrant form of *Partula*; he places it provisionally after *P. rosca*. The shells were collected by Semper on Pililu, one of the Pelew Islands. In his MS. work Dr. Hartman erroneously states that it is one of the Samoan Group.

4273. "***Partula varia*** Brod., Huaheine." Fourteen specimens. One is whitish (= No. 4274); two are pale with a purple spire, approaching *P. bicolor* Garr. MS. No. 4275; one is chestnut-colored (= *mucida* Pfr., No. 4278); one is small, brown (= *pulchra* Pse., No. 4280); seven are yellow with a dark spire and variously banded

with chestnut; one is chestnut obscurely banded with yellow; one is short, chestnut colored.

4274. "*Partula varia* Brod. var., Huaheine." On the back of the card is written: "This shell in Acad. Nat. Science is marked *P. strigata* Pse. ex auctore." Regarding this note see Proc. Acad. Nat. Sc. Phila., 1885, p. 219, where the name is printed *strigosa* Pse. (cf. No. 4259). The Academy specimen led Dr. Hartman to place *P. strigata* among the synonyms of *varia* in his first catalogue, 1881; subsequently the mistake was corrected. Twelve specimens, ashy, ochraceous or whitish, with a narrow purplish line above the suture.

4275. "*Partula bicolor* Garr. MS., Huaheine." Five specimens, somewhat inflated, yellowish, with one or two whorls of the spire purple brown. Included among the synonyms of *P. varia* Brod. in all Dr. Hartman's catalogues. This is not *P. bicolor* Pse., No. 4162, though originally Garrett may have supposed that *bicolor* Pse. was the same as his shell, which somewhat resembles it. In his MS. catalogue probably written about 1881, he gives "*bicolor* Pse., Guam," and *bicolor* Garr. MS. as a variety of *varia*.

4276. *Partula glutinosa* Pfr., Huaheine, Coll. Pse." On the back of the card is written: "Examples like these in Coll. Cox from Turner, N. Hebrides, not correct; these are from Huaheine." Nine specimens, larger than any of the other varieties of *P. varia*, yellow or pale, sometimes clouded around the umbilicus, and with the lower half of the lip purple tinted. In his catalogue of Partula, 1881, Dr. Hartman gives this as a valid species; subsequently he treats it as a variety of *varia*, in which he agrees with Garrett. See Proc. Acad. Nat. Sc. Phila., 1885, pp. 218-219.

4277. "*Partula perplexa* Pse. MS. (type) (typical, H. H. S.), Huaheine, Coll. Pse." Five specimens. Four are yellow with the spire white, suture and lower part of the body whorl castaneous, the dark color appearing on the inner surface and lip as a purple tint. These shells, in color, are exactly like the purple-banded specimens of *P. cognata* Pse. (= *rosca* Brod.), No. 4270: in size and form they are like No. 4275 and some of the specimens included under *varia*, No. 4273. The fifth specimen (perhaps introduced for comparison) is a dark example of *varia* with a yellow peripheral band. *P. perplexa* is included among the synonyms of *varia* in all Dr. Hartman's catalogues. It is not mentioned in the Garrett MS. catalogue.

4278. "*Partula mucida* Pfr. (typical). Huaheine." Five specimens of a dark chestnut-colored shell, more elongate than the typical *varia*, No. 4273, or the vars. Nos. 4274-4276; the mouth is narrower and the lip more developed. Compare No. 4279. *P. mucida* is placed among the synonyms of *varia* in all Dr. Hartman's catalogues. With the collection there is a water-color drawing by E. A. Smith of the type *mucida* in the British Museum (No. 4345). Mr. Garrett, who saw this drawing, agreed with Dr. Hartman that it was a variety of *varia* (letter, Nov. 25, 1883).

4279. "*Partula huaheinensis* Garr. MS., Huaheine, Coll. Garr." Ten specimens. Four are dark chestnut colored, approaching *P. mucida* Pfr., No. 4278, but smaller; four are yellow, one dark on the spire; two are yellow obscurely banded. In size the average is less than that of most of the varieties of *P. varia*, but greater than *P. pulchra* Pse., No. 4280. In his MS. catalogue, Mr. Garrett makes this a synonym of *pulchra*, which he later regarded as a variety of *varia*. *P. huaheinensis* is given among the synonyms of *P. varia* in all Dr. Hartman's catalogues.

4280. "*Partula pulchra* Pse. (typical), Huaheine, Coll. Pse." Seven specimens. Four are dark castaneous and three yellowish. The smallest of the varieties referred to *P. varia* (see No. 4279). This is *P. varia* var. *pulchra* Pse., Proc. Zoöl. Soc. Lond., 1871, p. 473. It is included among the synonyms of *varia* in all Dr. Hartman's catalogues.

NOTE. — ***Partula newcombianum*** Hartm., Proc. Acad. Nat. Sc. Phila., 1886, pp. 34, 35, Pl. II, Fig. 13. This species is represented in the Hartman collection only by two photographs mounted on cards (Nos. 4335 and 4336). One (No. 4336), marked "type", is the original of the figure; on the back of the card is written: "The vessel was lost in which the example was returned and the type is lost." Presumably the type example was to have been returned to Mr. Layard, but there is no mention of the loss in the existing Layard letters. The other photograph (No. 4335) is so different as to suggest a doubt whether the label is correct.

4281. "***Partula assimilis*** Pse., Rarotonga Island (Coll. Pse.)." Eight specimens. In his MS. catalogue Garrett states that he collected the species on Rarotonga, presumably before he sold his collection to Pease. See No. 4330.

4282. "*Partula cookiana* Mouss MS., = *assimilis*, Rarotonga Island." Five specimens, rather smaller than those included under No. 4281.

4283. "***Partula virgulata*** Pse., Rarotonga Island (Coll. Pse.)." Seven specimens, all light sulphur yellow, sometimes with the apex purple. The species is hardly distinguishable from *P. assimilis* Pse., but is treated as valid in all Dr. Hartman's published catalogues. The name *virgulata* does not appear in Garrett's MS. catalogue, though he states that he collected *P. assimilis* on Rarotonga. In Dr. Hartman's MS. work the species is entered, but a blank is left for the description, perhaps indicating that he doubted its validity or was not certain that his specimens were really *P. virgulata*.

4284. "***Partula subgonocheila*** Mouss., Fortuna, Friendly Isls." On the back of the card is written "Capt. Brazier datum." Four specimens. The habitat given for this species in Proc. Acad. Nat. Sc. Phila., 1885, p. 219, is "Fortuna and Vavao Islands." Vavao, or Vavau, is a small island in the northern part of the Tonga or Friendly Islands group; Fortuna does not appear on the maps. Garrett, in his MS. catalogue, gives "Tutuila (Gräffe)." Perhaps Fortuna is a locality on Vavao Island.

4285. "***Partula subgonocheila*** Mouss., Tutuila." Four specimens, one immature, two probably dead shells, and the fourth in rather poor condition. These shells are considerably smaller than No. 4284, and, as far as can be judged, the lip is orange-tinted, that of No. 4284 being white. It is doubtful if they are of the same species. It is perhaps significant that, in his MS. work, Dr. Hartman has left a blank for the description of this species, as he has for several others. The locality given on the label is also very doubtful; neither *subgonocheila* nor any shell similar to it is recorded from Tutuila by later collectors. The card and the label appear to be older than those of No. 4284.

4286. "***Partula caledonica*** Pfr., Sandwich Island = Vate, Havanna Harbour, N. Hebrides." Seven specimens. In Proc. Acad. Nat. Sc. Phila., 1885, p. 222, the habitat given for this species is "Vavua, Tavu, Banks Island, N. Hebrides." In his MS. work Dr. Hartman changes this, in accordance with a correction by Mr. Layard, to "Vanua-lavu, Banks Islands."

4287. "***Partula caledonica*** Pfr., Vate or Efate Island or Sandwich Island, N. Hebrides." On the back of the card, lightly written in pencil, is "*pyramis?*" Two specimens, one immature, and the other nearly denuded of epidermis. A photograph of two shells is attached to the same card; one of these seems to be the immature

specimen, and the other is an adult shell, different from the one on the card; this may have been an example loaned by Dr. Cox or Mr. Brazier and subsequently returned. Probably the specimens were sent by Mr. Brazier, June 15, 1882, as appears from his letter of that date. He states that he collected them at Vate or Sandwich Island.

4288. "*Partula pfeifferi* Crosse, Havanna Harbour, Vate Island, N. Hebrides." Two specimens, one marked on the shell "20." A synonym of *P. caledonica*. Crosse proposed the name *pfeifferi*, as *caledonica* is a misnomer.

NOTES.—**Partula brazieri** Pse. Not represented in the Hartman collection. Dr. Hartman, in his Bibliographical Catalogue and in Proc. Acad. Nat. Sc., 1885, p. 222, places it among the synonyms of *P. caledonica* Pfr. Mr. Brazier wrote, Jan. 18, 1885: "It was in 1879 (?) I sent the whole of my Partulas to Pease and in the lot one that I obtained at Tutuila, Navigators, only a single specimen, which he described and figured as *P. brazieri*; he having died shortly after I never received the specimen back." Dr. Hartman alludes to this, Proc. Acad. Nat. Sc. Phila., 1885, pp. 222, 223, and adds: "The example in the Coll. Acad. Nat. Sc., labeled *P. brazieri* Pease, ex auctore, is of the New Hebrides type, and agrees with my example of *turneri*" (*caledonica* ?). In his MS. work Dr. Hartman treats *P. brazieri* as a valid species. Garrett, Proc. Acad. Nat. Sc. Phila., 1887, p. 12, doubts its having been obtained at Tutuila. In a letter, Sept. 8, 1880, he expresses the same doubt and adds: "Pease was very careless in regard to localities. He says it belongs to the *conica* group, but his figure proves that it belongs to the New Hebrides type."

Partula turricula Pse. Not represented in the Hartman collection. In memoranda by Dr. Cox, about 1881, he observes that the New Hebrides habitat attributed to this species wants confirmation. It is given with doubt in Dr. Hartman's papers and in his MS. work. The species has never been figured. See No. 4291.

4289. "**Partula carnicolor** Hartm., Aura Island, N. Hebrides." Four specimens, including two immature. Types of Dr. Hartman's description, Proc. Acad. Nat. Sc. Phila., 1888, p. 250, Pl. XIII, Fig. 2 (the more elongate of the two adults). A slip pasted on the back of the card has, in Mr. Layard's handwriting: "*Partula*, No. 407, Aura Isld., N. Hebrides. Scarce, very few received. I send one adult and one young to show epidermis." Probably the other ex-

amples were also sent by Mr. Layard. Aura Island is in the Santo Espirito Group, New Hebrides.

4290. "**Partula albescens** Hartm. (type), Aura Isld., N. Hebrides." A slip pasted on the back of the card has, in Mr. Layard's handwriting: "*Partula*, No. 410, Aura Island, Malo Pass, Espirito Santo Isls., N. Hebrides. May be retained." Four specimens. Type of Dr. Hartman's description, Proc. Acad. Nat. Sc. Phila., 1888, p. 251, Pl. XIII, Fig. 4. Mr. Layard sent the same species from Sitova Island, as appears from the correspondence.

NOTES.—**Partula eburnea** Hartm., Proc. Acad. Nat. Sc. Phila., 1886, p. 33, Pl. II, Fig. 10. This species is represented in the Hartman collection only by two photographs mounted on cards. The first (No. 4339) corresponds to the published figure and is marked "type." On the back of the card is written: "Example returned to Dr. Cox." Probably the example was returned to Mr. Brazier, as Dr. Hartman states, *loc. cit.*, that Brazier had sent the shells; in his MS. catalogue the species is said to be in the "collection of Mr. John Brazier, Sidney, Australia." The other photograph (No. 4340) is of a smaller shell, marked "*Partula eburnea* Hartm. Hab.?" No doubt this also was returned to Brazier.

Partula proxima Hartm., Proc. Acad. Nat. Sc. Phila., 1886, p. 34, Pl. II, Fig. 11. This specimen is represented in the Hartman collection only by two cards on each of which are photographs of two shells. One (No. 4337) is marked "*Partula proxima* Hartm., Vanua Levu, N. Hebrides." The photographs are separated, and one of them, corresponding to the published figure, is marked "type." On the back of the card is written: "Returned to Dr. Cox." The other (No. 4338) is marked "*Partula proxima* Hartm., Vanua Levu, Banks Islands." On the back of the card is written: "Photos from Coll., Cox, all returned." In the description it is stated that the shells were received from Mr. Brazier, and in his MS. work Dr. Hartman credits the species to the collection of Mr. John Brazier, Sidney; they may have been returned to Mr. Brazier through Dr. Cox. The habitat is Vanua-lavu, Banks Islands.

4291. "**Partula glaber** Hartm. (type), N. Hebrides?" One specimen, marked "type example." On the back of the card is written: "Coll. Pse." Type of Dr. Hartman's description and figure. Proc. Acad. Nat. Sc. Phila., 1885, p. 205. Dr. Hartman observes: "This species was received among other shells as *P. turricula* Pease

New Hebrides (?) without a voucher." Probably the mark on the back of the card is of no value.

4292. "**Partula eximia** Hartm. (type), Aniutum Island, N. Hebrides." On the back of the card, in Dr. Hartman's handwriting: "This shell is *P. macgillivrayi* Pfr. Of this I am certain, having compared it with typical *macgillivrayi*." Possibly this note is an extract from a letter, or the card may have been previously used for another shell. One specimen, received from Mr. Layard. It is the type of Dr. Hartman's description, Proc. Acad. Nat. Sc. Phila., 1886, p. 35, Pl. II, Fig. 14.

4293. "**Partula alabastrina** Pfr., Fiji Isls., Coll. Taylor." On the back of the card is written: "This shell was received from Mr. Geale, of London, who was with Hugh Cuming. The measurements agree with the description." Two specimens. *P. alabastrina* was said to be from the Solomon Islands. Dr. Hartman, in his MS. work, gives the habitat "Fiji Islands, Geale," but a blank is left for the description of the species.

4294. "**Partula fraterna** Hartm., Aura Island, N. Hebrides." A slip pasted to the back of the card has, in Mr. Layard's handwriting: "*Partula*, No. 407, Aura Island, N. Hebrides." Two specimens, one not quite mature. Type of Dr. Hartman's description, Proc. Acad. Nat. Sc. Phila., 1888, p. 250, Pl. XIII, Fig. 3. As appears from the Layard correspondence, the name *fraterna* was given by Dr. Hartman on account of the similarity of the species to *P. carnicolor*, from the same island. It is noteworthy that both were labeled 'No. 407' by Mr. Layard. Probably he sent *P. carnicolor* first, and *P. fraterna*, which he supposed to be the same species, later.

4295. "**Partula auraniana** Hartm., Aura Isld., N. Hebrides." A slip on the back of the card has, in Mr. Layard's handwriting: "*Partula*, No. 408, Aura Isld., N. Hebrides. Several stages of growth. They are viviparous. Keep these for yourself." Four mature and seven young and embryonic specimens. Type of Dr. Hartman's description, Proc. Acad. Nat. Sc. Phila., 1888, p. 250, Pl. XIII, Fig. 1. The figure makes the shell too dark below. The epidermis is yellowish horn-color, sometimes rubbed off on the upper part of the body whorl and the spire, leaving the shell white.

4296. "**Partula guamensis** Pfr., Ponape, Asention Isld., Caroline Islds., Brazier dat." Five adult specimens and seven young in various stages of growth. The specimens were sent by Mr. John

Brazier, of Sidney, June 18, 1885. He says: "You will notice that I send you a great many specimens of the *Partula* called *guamensis* Pfr., which Dr. von Martens says is *rufa* Less. Some have a peculiar red line at the periphery." There is a photograph of one of the adult examples (No. 4341). See No. 4331.

4297. "*Partula guamensis* Pfr., Asention Island, Coll. Pse.: = *ponapensis* Hartm." Six adult and eight embryonic specimens. *P. ponapensis* is the name proposed by Dr. Hartman as a substitute for *guamensis*, which he considered a misnomer. See Proc. Acad. Nat. Sc. Phila., 1885, p. 221. He remarks that specimens in the Cox collection are labeled Asention Island. Pease, in Proc. Zoöl. Soc. Lond. 1871, p. 473, gives the locality Ponape. Probably both Pease and Cox obtained their specimens from Brazier, who, in that case, is the only authority for the habitat. Ponape is one of the Caroline Islands, and Asention, or Ascencion, may be a place on it.

4298. "**Partula rufa** Less., Ouhalan, Brazier dat." On the back of the card is written: "Given by Cox and Brazier." Two specimens, one a dead shell. The latter was received from Dr. Cox. Subsequently Mr. Brazier sent the better example, as appears from Brazier's letter, dated Sidney, June 18, 1885: "As you wish to receive a good specimen of *P. rufa* Less., I send you the best I have." Both specimens were collected by Brazier "on the banks of the Lella River, Chabroul Harbor, Ouhalan or Strong's Island." See Hartman, Proc. Acad. Nat. Sc. Phila., 1886, p. 30, Pl. II, Fig. 15. Oualan or Strong's Island is one of the Caroline Islands. In Dr. Hartman's MS. work the habitat given is "Ovalau." (Fiji Is.) Probably this is a mistake, due to a letter from Mr. Layard, June 11, 1887, in which he says: "If Oualan is in Fiji it should be Ovalan, on which Levuka is situated." Mr. Garrett wrote, September 5, 1882: "I don't think there is any doubt of the Strong's Island *Partula* being Lesson's *P. rufa*."

With the Hartman collection there is an excellent photograph of the two specimens of *P. rufa*, together with one of *P. guamensis* Pfr. (No. 4341); also, two photographs on cards (one of them colored) of *P. rufa* and *Diplomorpha coxi* (Nos. 4342, 4343).

NOTES.—**Partula obesa** Pse. This species is not represented in the Hartman collection. In Proc. Acad. Nat. Sc. Phila., 1885, p. 221, the habitat given is "Fortuna and Vavao Islands," but in his MS. work Dr. Hartman says that the species was described from a single specimen and that the habitat was unknown.

Partula abbreviata Mouss. Not represented by specimens in the Hartman collection. There is a water-color drawing by E. A. Smith of the type example in the British Museum (No. 4345). The form, as shown in this drawing, leads to the suspicion that it may be an abnormal example. The shell is said to be from Tutuila, and was collected by Gräffe.

4299. "**Partula conica** Gould, Upolu, Mus. Godeff." Six specimens, two immature, of the dextral variety. All are dead shells and only one adult has the epidermis tolerably well preserved.

4300. "*Partula canalis* Mouss., = *conica* Gld., Upolu, Mus. Godeff." Five specimens, two dark and three light brown. Dr. Hartman followed Gould in uniting this sinistral shell with the dextral *P. conica*. Others regarded them as distinct. Garrett, who was of this opinion, pointed out that *conica* is smaller and covered with fine incised revolving lines, which, in *P. canalis*, are seen only on the apex and close to the umbilicus (Proc. Acad. Nat. Sc. Phila., 1887, pp. 11 and 12). This observation is confirmed by the specimens in the Hartman collection. Both forms are found on Upolu and Tutuila, and Dr. Hartman mentions other islands in Proc. Acad. Nat. Sc., 1885, p. 222.

4301. "*Partula canalis* Mouss., var. *semilineata*, Tutuila, Mus. Godeff." Three specimens, pale yellowish with a white, translucent spire. One shows the incised revolving lines of *P. conica*, but they are finer and not so distinct.

NOTE. — **Partula bulimoides** Less., said to be from New Guinea. Not represented in the Hartman collection. In his first Catalogue of Partula, 1881, he refers *P. conica* to this species; subsequently he was inclined to regard it as distinct. In his MS. work he remarks: "This shell has never been identified by conchologists. Lesson's brief diagnosis may apply to some varieties of *conica* as well as *faba*. His measurements of the shell, and the locality, require that it should be kept separate."

4302. **Partula macgillivrayi** Pfr. "*Partula turneri* Pfr., Tauua, New Hebrides, Coll., Geale." Four specimens, three light brownish and one yellowish like No. 4303, all with more or less obvious oblique strigations. Dr. Hartman, in all his catalogues, treats *P. turneri* as a synonym of *P. macgillivrayi*. Mr. Cox, in memoranda written about 1881, says: "*P. macgillivrayi* Pfr. is from Aneitum, N. Hebrides." "*P. turneri* Pfr. is from Erromango, N. Hebrides."

In Dr. Hartman's MS. work he states that *P. macgillivrayi* is from Erromango and Vate islands; after the synonym *P. turneri* he gives the habitat "Erromango Island, New Hebrides."

4303. "*Partula turneri* Pfr., New Hebrides, Coll. Geale." On the back of the card is written: "*turneri* Dr. T. found on Erromango Island. One, No. 13, yellow, from same island, found by Capt. Brazier. Solid yellow ones like these (several) marked Tauua in Capt. Brazier's Coll." (The latter part of the note appears to refer to specimens which Dr. Hartman received from Mr. Brazier, but probably returned. See Proc. Acad. Nat. Sc. Phila., 1885, p. 222, but the locality there given is Vate or Sandwich Island. In Dr. Hartman's copy of the Academy paper "Tauua" is written after New Hebrides.) Three specimens, all pale yellow.

4304. "*Partula turneri* Pfr., New Hebrides, A. Brot datum." A slip pasted to the card has, in Brot's handwriting: "*P. turneri* Pfr., N. Hebrides (Mousson)." On the back of the card is written: "Presented by Dr. Brot, of Geneva; from Mousson." One specimen, much like the pale brown examples included under No. 4302, but with an obsolete narrow darker band at the periphery. In his MS. work Dr. Hartman observes: "*P. turneri* Pfr. from M. Mousson per Dr. A. Brot, is the same as *P. macgillivrayi* (No. 4302?) from the collection of Mr. Geale, who accompanied Hugh Cuming. Recent examples from Mr. Brazier, Vate, exhibit these as all one species." See No. 4303.

4305. "***Partula pyramis*** Hartm., Vate or Efate, Sandwich Isld., N. Hebrides." On the back of the card is written: "Sent me by Thomson from Layard." Two specimens, a photograph of one of them, and another photograph, apparently of a third example, pasted on the same card. Type of Dr. Hartman's description, Proc. Acad. Nat. Sc. Phila., 1886, p. 34, Pl. II, Fig. 12 (the specimen accompanied by its photograph, the shorter of the two). The habitat given is "Vate, Efate or Sandwich Island," and Dr. Hartman remarks that he has three specimens from Mr. Layard and Mr. Brazier. No doubt one of these was returned but a photograph of it was retained.

HYBRIDS.

4306. "*Partula* (hybrids)." Nine specimens. Perhaps a hybrid between *faba* and *vittata* or *radiata*.

4307. "Hybrid between *virginea* and *dubia*, Raiatea." On the back of the card is written: "Sent by Garrett." Five specimens.

4308. "*P. amanda* and *virginea* (hybrid), Raiatea." Three specimens.

4309. "Hybrid between *fusca* and *navigatoria*, (Garrett datum)." On the back of the card is written: "Sent by Garrett as *microstoma* No." One specimen. In a letter to Dr. Hartman, Aug. 5, 1882, Mr. Garrett says: "The shell I sent you as *P. microstoma* Pse., of which I have only four examples on a tablet, was taken in the same locality where I obtained Pease's type specimens. If, as you suggest, it is a hybrid, it can only be a cross between *faba* and *radiata*, as there was no other species inhabiting that part of the valley. I have other shells from the same locality which I take to be hybrids between the two former species (No. 4310?). It is evident that Pease changed the names of some of his MS. species after I left Honolulu in 1863." On Sept. 8, 1880, Garrett wrote: "The shell I sent you as *microstoma* is correct unless Mr. Pease shifted the name to another species. I named the shell and collected many examples on the trunks of trees near the ground." See under No. 4108. The example resembles some of the specimens of *radiata* Pse., included under No. 4132, *q v*.

4310. "Hybrid between *faba* and *radiata*, Garr." Two specimens. See extract from Mr. Garrett's letters under No. 4309. Compare No. 4135.

4311. "Hybrid between *faba* and *virginea*, Garrett datum." One specimen.

4312. "Hybrid between *faba* and *virginea*, Garrett datum." One specimen.

4313. "Hybrid, *ovalis* and *dentifera*, Raiatea, Coll. Pse." Two specimens.

4314. "Hybrid, *P. dentifera* Pfr." One specimen. The shell looks like a small *P. imperforata*, No. 4172.

4315. "*Partula*. Hybrid between *garrettii* and *thalia*." Two specimens. Yellowish, darker below the periphery.

4316. "Hybrid between *garrettii* and *thalia*." Five specimens, resembling No. 4315.

4317. "*Partula*. Hybrid between *garrettii* and *halia*, Raiatea." Three specimens, smaller than Nos. 4315 and 4316 mouth unusually small; color uniform yellowish.

4318. "*Partula*. Hybrid between *thalia* and *crassilabris*." Five specimens.

4319. Three shells mounted on the same card, labeled respectively, "*thalia*," "hybrid," "*crassilabris*."

4320. "*P. thalia* ? or *P. crassilabris*." Two specimens. Compare No. 4151. The examples are perhaps hybrids.

4321. "Hybrid." One specimen, without other label; perhaps a hybrid between *crassilabris* and *rustica*.

4322. "Hybrids between *crassilabris* and *bella*." Three specimens. *P. bella* is a variety of *P. hebe*.

4323. "Hybrid between *rustica* and *hebe*." Two shells, labeled "*hebe*" and "hybrid." The corresponding specimen of *rustica* is missing.

4324. "*Partula*, between *rustica* and *umbilicata*, Raiatea." Two specimens. The name *umbilicata* is nearly illegible and appears to have been written over *fusca*."

4325. "Hybrid between *rufa* and *affinis*, Tahiti, Coll. Pse." *P. affinis* is a variety of *P. lignaria* Pse.; for *rufa* must be understood *P. stolidus*, to which *rufa* Less. was at one time referred. Two specimens.

4326. "Hybrid between *P. affinis* and ———." The label is not completed, but the shell is much like No. 4325, except that it is a little smaller and darker. One specimen.

4327. "Hybrids, Moorea." Three specimens; labeled respectively "*elongata*" "hybrid" and "*alternata*." The first is like the typical *tenuata* Mörch (No. 4223) rather than its variety, *elongata*. *P. alternata* is a variety of *suturalis* Pfr.

4328. "*Partula hyalina* ? Coll. Geale. (hybrid?)." On the back of the card is written: "Geale sent me this as *spadicea*." One specimen; a pale brownish shell, very little shining. It looks like some of the varieties of *P. tenuata* Mörch, and is certainly not *hyalina*, which is a white shell.

4329. "*Partula garrettii* ? and *hyalina* Pse., Coll. Pse." Two specimens.

See also Nos. 4109, 4135, 4228.

MISCELLANEOUS.

4330. "*Partula*." Two specimens mounted on a card, without other label. A pale horn-colored species, resembling *P. assimilis* Pse., No. 4281.

4331. A tube with nine embryonic shells, labeled "*guamensis* Jusseau." No doubt *P. guamensis* Pfr.

There were also seven unlabeled *Partulas* with the collection, found in a box with No. 4332, and probably intended for sections. These have been referred to *citrina* Pse., *formosa* Pse., *fusca* Pse., *otaheitana* Brug. var. *amabilis* Rve., *lignaria* var. *affinis* Pse., *crassilabris* var. *rustica* Pse. and *thalia* Garr.

SECTIONS.

4332. "*Partula faba* Martyn." Three sections; front, back and side of the shell. In the same box is a pill box with a number of embryonic shells, no doubt of *P. faba*.

4333. "Four sections mounted on one card, labeled respectively "*crassilabris*," "*rustica*," "*recta*" and "*rosea*."

See also No. 4181.

PHOTOGRAPHS.

4334. "*Partula woodlarkiana* Hartm., New Guinea, Woodlark Isld." Two photographs of the same shell, mounted on a card. On the back of the card is written: "The shell was returned to Brazier as requested." The species is not represented by specimens in the Hartman collection.

4335. "*Partula newcombianum* Hartm." Photograph mounted on a card. It represents an immature (?) shell, in form and appearance quite different from the typical *newcombianum*, No. 4336. There are several unmounted copies. Possibly the label is a mistake. The species is not represented by specimens in the Hartman collection.

4336. "*Partula newcombianum* Hartm., Salisboe Isld., (type)." Photograph from which the figure was taken, Proc. Acad. Nat. Sc. Phila., 1886, Pl. II, Fig. 13. On the back of the card is written: "The vessel was lost in which the example was returned and the type is lost."

4337. "*Partula proxima* Hartm., Vanua Levu, N. Hebrides." Two photographs mounted on a card. One is marked "type" and is the original of the figure in Proc. Acad. Nat. Sci. Phila., 1886, Pl. II, Fig. 11. On the back of the card is written: "Returned to Dr. Cox." The species is not represented by specimens in the Hartman Coll.

4338. "*Partula proxima* Hartm., Vanua Levu, Banks Islands." A photograph of two shells, corresponding to the separated photo-

graphs, No. 4337. On the back of the card is written: "Photos from Coll. Cox, all returned."

4339. "*Partula eburnea* Hartm. (type)." Photograph mounted on a card, the original of the figure in Proc. Acad. Nat. Sc. Phila., 1886, Pl. II, Fig. 10. On the back of the card is written: "Example returned to Dr. Cox." The species is not represented by specimens in the Hartman collection.

4340. "*Partula eburnea* Hartm. Hab.?" Photograph mounted on a card: it does not represent the same example as No. 4339.

4341. Photographs of two specimens of *Partula rufa* Less., (No 4298) and one specimen of *Partula guamensis* Pfr. (one of the examples included under No. 4296), labeled "*Partula rufa* Less., Ovalan" and "*Partula guamensis* Pfr., Ponape." On the back of the card is written: "Photos from my collection."

4342. "*Partula rufa* Less." "*Diplomorpha coxi* Hartm. (type)." Photographs of these shells, taken together. Both are from the Cox collection, and were returned to Dr. Cox.

4343. Photograph, the same as No. 4342, but colored.

4343¹/₂. "*Partula corneola* Hartm., Eimeo, Moorea, Mr. Geale dat." Three photographs, mounted on one card. Two are of the same shell, and are the originals of the figure in Proc. Acad. Nat. Sc. Phila., 1886, Pl. II, Fig. 6. The photographs are of specimens included under No. 4242.

The photographic negatives are not catalogued, as they are unlabeled, and many cannot be identified. Some of them represent specimens from the Cox collection.

DRAWINGS.

4344. "*P. reeveana* Pfr., E. A. Smith, Brit. Museum." A water-color drawing, labeled by E. A. Smith, mounted on a card. On the back of the card is written: "*P. reeveana* Pfr. = dextral *otaheitana*. Drawn by E. A. Smith, conchologist, Brit. Mus."

4345. Water-color drawings of eight species of *Partula*, "types from British Museum," marked respectively: "*abbreviata* Mouss.," "*lilacina* Pfr., from type," "*repanda* Pfr.; others are pale yellow," "*filosa* Pfr., ash striping more conspicuous," "*minuta* Pfr., from type," "*gonochelia* Pfr.," "*mucida* Pfr., from type," "*decussatula* Pfr., differs from *gonochelia* in spire being shorter, lip less reflexed, and extremities more converging—mouth larger." On the back of the

card is written : "These drawings, from types in the British Museum, were furnished by E. A. Smith, F. Z. Soct., Curator of Conchology at the Museum."

4346. Pencil drawing of *Partula tryoni* Hartm. by Mr. A. Garrett, from a specimen in his collection. See No. 4261.

CATALOGUE OF THE GENUS PARTULA FÉR. BY THE LATE MR. ANDREW GARRETT OF HUAHEINE, SOCIETY ISLANDS. WITH EXPLANATORY NOTES BY HERBERT H. SMITH.

The following catalogue was found among the letters sent by Mr. Garrett to Dr. Hartman; it is undated, but appears to have been written about 1881, or, possibly, a year or two earlier. Many of the so-called species included in it were afterwards regarded as varieties by Mr. Garrett himself. The list, however, is still valuable in showing the relationship of varieties, and especially for the careful notes on localities. In the case of species and varieties collected by Mr. Garrett himself these are of prime importance. For the habitats of other species he generally copied from older authors.

Mr. Garrett says: "In this list I give the correct localities, and attach my name to every species which I collected. Mr. Pease, in his list of Polynesian shells (Proc. Zoöl. Soc. Lond., 1871), gives many wrong localities. I named all Mr. Pease's Society Island *Partulas* when I collected them, and Mr. Pease adopted my names, so I am sure to be right in both names and localities.

"All those species marked with a † are unknown to me. I add references to the original descriptions. All Mr. Pease's MS. species he intended to publish in a monograph of the genus. I tried to get his MSS. but could not succeed."

The explanatory notes are in parentheses, with the initials H. H. S.

1. *Partula auriculata* Brod., P. Z. S., 1832, p. 125; = *robusta* Pse. MS. Raiatea (Garr.)

2. *P. affinis* Pse., Journ. Conch., 1867, p. 244 (either *P. lignaria* Pse. var. or *otahaitana* Brug. var., H. H. S. See No. 4200, Hartman Coll.). Tahiti (Garr.).

3. *P. approximata* Pse. MS. = *terrestris* Pse. MS. (= *vittata* Pse. var., H. H. S.). Raiatea (Garr.).

4. *P. amanda* Garr. MS. = *dubia* Garr. MS. (= *faba* Mart. var., H. H. S.). Tahaa (Garr.).

5. *P. attenuata* Pse., P. Z. S., 1854, p. 672; = *gracilis* Pse., Amer. Journ. Conch., 1866, p. 197; 1867, p. 81, Pl. 1, Fig. 3. Tahiti (Garr.), Raiatea (Garr.).
6. *P. annectens* Pse. (*Bulimus*), P. Z. S., 1864, p. 671. Huahine (Garr.).
7. *P. arguta* Pse. (*Bulimus*), P. Z. S., 1864, p. 670. Huahine (Garr.).
8. *P. assimilis* Pse., Amer. Journ. Conch., 1867, p. 230, Pl. 15, Figs. 28, 29; = *cookiana* Mouss. MS. Rarotonga (Garr.).
9. *P. amabilis* Pfr. (*Bulimus*), P. Z. S., 1846, p. 38; = *rubescens* Rve. (pars.?) (= *otaheitanus* Brug. var., H. H. S.). Tahiti (Garr.).
10. †*P. alabastrina* Pfr., P. Z. S., 1856, p. 390. (See No. 4293, Hartman Coll., said to be from the Fijis, H. H. S.) Solomon Islands.
11. †*P. actor* Albers, Heliceen, p. 187. Hab.?
12. †*P. abbreviata* Mouss., Journ. de Conch., 1869, p. 339, Pl. 14, Fig. 7. Tutuila (Gräffe.).
13. †*P. brazieri* Pse., Amer. Journ. Conch., 1871, p. 27, Pl. 9, Fig. 5. Tutuila (Pse.).
14. †*P. bicolor* Pse., Amer. Journ. Conch., 1871, p. 26, Pl. 9, Fig. 4. Guam.
15. *P. bilineata* Pse., Amer. Journ. Conch., 1866, p. 201; 1867, p. 81, Pl. 1, Fig. 10. Tahaa (Garr.).
16. †*P. concinna* Pse., Amer. Journ. Conch., 1871, p. 196. Tauua, New Hebrides.
17. *P. conica* Gld., Proc. Bost. Soc., 1848, p. 196. Upolu (Garr.).
18. *P. crassiuscula* Garr. MS. Pacific Islands (Mus. Godeffroy). (Perhaps *P. bellula* Hartm. See Proc. Acad. Nat. Sc. Phila., 1885, p. 203, H. H. S.)
19. *P. canalis* Mouss., Journ. de Conch., 1865, p. 172. (According to Hartman and Gould, a sinistral variety of *conica* Gld.: Garrett believed it to be distinct. H. H. S.) Upolu (Garr.).
20. *P. Coxi* Angas. Ysabel Island, Solomon Islands.
21. *P. clara* Pse., P. Z. S., 1864, p. 671. Tahiti (Garr.).
22. *P. compacta* Pse., Amer. Journ. Conch., 1866, p. 200; 1867, p. 81, Pl. 1, Fig. 9. Raiatea (Garr.).
23. *P. crassilabris* Pse., Amer. Journ. Conch., 1866, p. 199; 1867, p. 81, Pl. 1, Fig. 6. Raiatea (Garr.).

24. *P. crassa* Pse. = *perversa* Pse. (not Chemn.). (*P. otaheitan* Brug. var., H. H. S.) Tahiti (Garr.).

25. *P. compressa* Pfr. ? = *radiata* Pse. MS. (*P. radiata* Garr.; not *compressa* Pfr., H. H. S.). Raiatea (Garr.).

26. *P. caledonica* Pfr., P. Z. S., 1861, p. 389. New Hebrides.

27. *P. citrina* Pse., Amer. Journ. Conch., 1866, p. 195. Raiatea (Garr.).

28. *P. callifera* Pfr., P. Z. S., 1856, p. 333; = *megastoma* Pse. MS. Raiatea (Garr.).

29. †*P. calypso* Semp., Journ. de Conch., 1865, p. 418, Pl. 12, Fig. 7. Pelew Isls.

30. †*P. cinerea* Albers, Malak. Blat., Vol. 4, p. 98, 1857. Solomon Islands.

31. †*P. carteriensis* Q. et G. (*Helix*), Voy. Astrol, Vol. 2, p. 117, Pl. 9, Figs. 10-11. New Hebrides (Quoy et Gaim.).

32. †*P. decussatula* Pfr., P. Z. S., 1849, p. 131. Navigator and Solomon Islands.

33. *P. dentifera* Pfr., P. Z. S., 1852, p. 85; = *labiata* Pse. MS., Raiatea (Garr.); = *decorticata* Pse. MS. Raiatea (Garr.).

34. †*P. diminuta* C. B. Ads., Ann. Lyc. N. Y., Vol. 5, p. 41 (*P. otaheitan* Brug. var., H. H. S.). Society Islds.? (Garr.).

35. *P. elongata* Pse., Amer. Journ. Conch., 1886, p. 146; 1867, p. 81, Pl. 1, Fig. 2. Moorea (Garr.). (According to Dr. Hartman a var. of *P. tenuata* Mörch; Garrett believed it to be distinct. H. H. S.)

36. †*P. expansa* Pse., Amer. Journ. Conch., 1871, p. 26, Pl. 9, Fig. 3. Tutuila (Brazier). (See 112, H. H. S.)

37. *P. erhelii* Morelet, Journ. de Conch., 1853, p. 371, Pl. 12, Figs. 7-8. Moorea. (= *P. tenuata* Mörch, H. H. S.)

38. *Partula formosa* Pse. MS. Raiatea (Garr.).

39. *P. faba* Martyn (*Limax*), Univ. Conch., Vol. 2, Pl. 67. Raiatea (Garr.).

40. *P. fusca* Pse., Amer. Journ. Conch., 1866, p. 193; = *protea* Pse. MS.; = *variabilis* Pse. (pars.). Raiatea (Garr.).

41. †*P. fragilis* Fér., Prodr., p. 66, No. 4. Guam.

42. *P. gibba* Fér., Prodr., p. 66, No. 3. Guam (Garr.); = *mastersi* Pfr., P. Z. S., 1857, p. 110. Guam (Masters).

43. *P. Garrettii* Pse., P. Z. S., 1864, p. 672. Raiatea (Garr.).

44. *P. ganymedes* Pfr. (*Bulimus*), P. Z. S., 1846, p. 39; = *fasciata* Pse., Amer. Journ. Conch., 1866, p. 202. Dominique and Taiwate, Marquesas Islands (Garr.).

45. †*P. gonocheila* Pfr. (*Bulimus*), Zeits. f. Mal., 1847, p. 82 Hab.?

46. *P. guamensis* Pfr. (*Bulimus*), Phil. Icon., Vol. 2, p. 113, Bul., Pl. 4, Fig. 9; = *brumalis* Rve., Conch. Icon., Fig. 2. Guam. (Presumably not from Guam; Brazier collected it on Ponape, Caroline Is., H. H. S.)

47. †*P. grisea* Less., Voy. Coq., p. 325, Pl. 13, Fig. 11. New Guinea.

48. *P. hyalina* Brod., Proc. Zoöl. Soc., 1832, p. 32. Tahiti (Garr.) Rurutu (De Gage) Maugaia (Garr.).

49. *P. hebe* Pfr. (*Bulimus*), P. Z. S., 1846, p. 39; = *globosa* Pse. MS.; = var. *bella* Pse.; = *ventricosa* Garr. MS. Raiatea (Garr.).

50. *P. huahinensis* Garr. MS.; = *pulchra* Pse. (= *varia* Brod. var., H. H. S.). Huaheine (Garr.).

51. *P. inflata* Rve., P. Z. S., 1842, p. 197; = *thersites* Pfr., Symb., Vol. 2, p. 52. Dominique, Taiwate, Marquesas (Garr.).

52. *P. imperforata* Pse. MS. Raiatea (Garr.).

53. *P. lutea* Less., Voy. Coq., p. 325. Bora-bora (Garr.).

54. *P. lignaria* Pse., P. Z. S., 1864, p. 671. Tahiti (Garr.).

55. *P. lugubris* Pse., P. Z. S., 1864, p. 672. Raiatea (Garr.).

56. *P. lincolata* Pse., Amer. Journ. Conch., 1867, p. 244 (= *filosa* Pfr., H. H. S.). Tahiti (Garr.).

57. †*P. leucothæa* Semp., Journ. de Conch., 1865, p. 417, Pl. 12, Fig. 5. (= *calypso* Semp., H. H. S.) Pelew Islds. (Semper.).

58. *P. lineata* Less., Voy. Coq., p. 324, Pl. 7, Figs. 8-9; = *alternata* Pse. Moorea (Garr.), MS. (The locality is for *alternata*, = *suturalis* Pfr., non *lineata* Less., H. H. S.)

59. †*P. lilacina* Pfr., P. Z. S., 1856, p. 334. Marquesas. (= *P. lutea* Less. from Bora-bora, Soc. Is., not Marquesas, H. H. S.)

60. *P. lirata* Mouss., Journ. de Conch., 1865, p. 196. V. Talavu (Garr.) Lantala (Garr.) Taviuni (Garr.).

61. †*P. lævigata* Pfr., P. Z. S., 1856, p. 334. Hab.? Probably a Society Island species.

62. *P. microstoma* Pse. MS. (probably *P. faba* Martyn, or perhaps a hybrid. See Nos. 4108 and 4309, Hartman Coll., H. H. S.). Raiatea (Garr.).

63. †*P. micans* Pfr., P. Z. S., 1852, p. 138. Solomon Is.
64. †*P. minuta* Pfr., P. Z. S., 1856, p. 384. Admiralty Islands.
65. †*P. macgillivrayi* Pfr., P. Z. S., 1855, p. 97. New Hebrides.
(*Partula mucida* Pfr. is entered at the end of the catalogue.)
66. *P. nucleola* Pse. MS. (= *teniata* Mörch. var., H. H. S.).
Moorea (Garr.).
67. *P. nodosa* Pfr., P. Z. S., 1851, p. 262. Samoa, Tahiti. (The
habitat Samoa appears to be an error, H. H. S.)
68. *P. navigatoria* Pfr., P. Z. S., 1849, p. 131; = *variabilis* Pse.,
Amer. Jour. Conch., 1866, p. 203; 1867, p. 81, Pl. I, Figs. 12-14.
Raiatea (Garr.).
69. *P. nitens* Pfr., P. Z. S., 1854, p. 293. Hab.? (= *P. lignaria*
Pse. from Tahiti, H. H. S.).
70. †*P. obesa* Pse., Amer. Journ. Conch., 1867, p. 223, Pl. 15,
Fig. 12. Hab.?
71. *P. ovalis* Pse., Amer. Journ. Conch., 1866, p. 144 (probably
Garret's specimens were *P. lugubris* Pse., dark var., not *ovalis* Pse.,
H. H. S.). Raiatea (Garr.).
72. *P. otaheitana* Brug. (*Bulimus*), Enc. Meth., Vol. I, p. 347,
No. 84; = *isabellina* Pfr. Tahiti (Garr.).
73. †*P. peasei* Cox, P. Z. S., 1871, p. 644, Pl. 52, Fig. 2.
Solomon Islds.
74. †*P. pellucida* Pse., P. Z. S., 1871, p. 457. Guadalcanar Isld.,
Solomon Isls. (Brazier).
75. †*P. pacifica* Pfr., P. Z. S., 1854, p. 125. Pacific Isls.
(= *otaheitana* Brug. var., Tahiti, H. H. S.).
76. *P. purpurascens* Pfr., P. Z. S., 1856, p. 333. Hab.? (= *rosea*
Brod. var., Huaheine, H. H. S.).
77. *P. producta* Pse., P. Z. S., 1864, p. 671. Tahiti (Garr.).
78. *P. planilabrum* Pse., P. Z. S., 1864, p. 672. Tahaa (Garr.).
79. *P. pulchra* Pse. MS. = *huahincensis* Garr. MS. (= *varia* Brod.
var., H. H. S.). Huaheine (Garr.).
80. *P. pinguis* Garr. MS. (= *rustica* Pse. var., H. H. S.).
Raiatea (Garr.).
81. †*P. raiatensis* Garr. MS.; = *abbreviata* Pse., non Mouss. (= *im-*
perforata Pse. MS. var., H. H. S.) Raiatea (Garr.).
82. †*P. radiolata* Pfr., P. Z. S., 1846, p. 39. Guam (Garr.).
83. *P. rosea* Brod., P. Z. S., 1832, p. 125; = *cognata* Pse. MS.
Huaheine (Garr.).

84. *P. recta* Pse., Amer. Journ. Conch., 1868, p. 155, Pl. 12, Fig. 8. Marquesas.

85. *P. rubescens* Rve., Conch. Icon., Pl. 3, Fig. 12; = *turricula* Pse. MS. (= *otaheitana* Brug., H. H. S.) Tahiti (Garr.).

86. †*P. rufa* Less., Voy. Coq., p. 324. Oualan, Caroline Islands. No doubt a Tahiti species. (Not from Tahiti; the species was rediscovered at Ualan. H. H. S.)

87. *P. rustica* Pse., Amer. Journ. Conch., 1866, p. 199; 1867, p. 81, Pl. 1, Fig. 5. Raiatea (Garr.).

88. †*P. repanda* Pfr., P. Z. S., 1855, p. 98. New Hebrides.

89. †*P. reeveana* Pfr., P. Z. S., 1852, p. 138. Solomon Islands. (= *otaheitana* Brug., Tahiti, not Solomon Islands, H. H. S.)

90. *P. solidula* Rve., Conch. Icon., Pl. 3, Fig. 16. (Probably *auriculata* Brod., = *solidula* Pse. MS., non Pfr., H. H. S.) Society Islands.

91. *P. stolidula* Pse., Amer. Journ. Conch., 1866, p. 198. Tahiti (Garr.).

92. *P. striolata* Pse., Amer. Journ. Conch., 1866, p. 197; 1867, p. 81, Pl. 1, Fig. 4 (= *taeniata* Mörch. var., H. H. S.), Moorea (Garr.).

93. †*P. strigata* Pse., Amer. Journ. Conch., 1868, p. 155, Pl. 12, Fig. 7 (= *P. recta* Pse. var., H. H. S.) Marquesas.

94. †*P. stenostoma* Pfr., P. Z. S., 1855, p. 17, Hab? Probably a Raiatea species. (= *P. suturalis* Pfr. var., Moorea, H. H. S.).

95. †*P. suturalis* Pfr., P. Z. S., 1855, p. 18, Hab? Also a Raiatea species? (from Moorea, identified with *rexillum* Pse., H. H. S.).

96. †*P. spadicea* Rve., Conch. Icon., Pl. 4, Fig. 24. Marquesas. (= *taeniata* Mörch, Moorea, not Marquesas, H. H. S.).

97. †*P. strigosa* Pfr., P. Z. S., 1856, p. 384. Admiralty Isld. (= *suturalis* Pfr. from Moorea, not Admiralty Isld., H. H. S.).

98. *P. subgonocheila* Mouss., Jour. de Conch., 1871, p. 14, Pl. 3, Fig. 4. Tutuna (Garr.).

(*Partula sinistrorsa* Pse. MS. and *P. subangulata* Pse. are at the end of the catalogue).

99. *P. thalia* Garr. MS.; = *peaseana* Garr. (not *peasei* Cox) : = *recta* Pease MS. (non *recta* Pse., No. 84). Raiatea (Garr.).

100. †*P. thetis* Semp., Journ. de Conch., 1865, p. 419, Pl. 12, Fig. 6 (= *P. calypso*, Semper, H. H. S.). Pelew Islands (Semper).

101. †*P. tenuata* Mörch, Cat. Conch. Kieralf, p. 29, Pl. I, Fig. 5. Viti Islands. (From Moorea, not Viti Is. Identified with *striolata* Pse., H. H. S.)

102. †*P. turneri* Pfr., P. Z. S., 1860, p. 40 (= *P. macgillivrayi* Pfr., H. H. S.). New Hebrides (Turner).

103. *P. turricula* Pse., Amer. Journ. Conch., 1871, p. 196. New Hebrides? (See No. 85: this appears to be a different species and perhaps the true *turricula* Pse., H. H. S.).

104. *P. turgida* Pse. (*Bulinus*), P. Z. S., 1864, p. 670. Raiatea (Garr.).

105. *P. trilineata* Pse., Amer. Journ. Conch., 1866, p. 195; 1867, p. 81, Pl. 1, Fig. 1 (= *P. nodosa* Pfr. var., H. H. S.). Tahiti (Garr.).

106. *P. umbilicata* Pse., Amer. Journ. Conch., 1866, p. 200; 1867, p. 81, Pl. 1, Fig. 7. Tahaa (Garr.).

107. *P. varia* Brod., P. Z. S., 1832, p. 125; = *glutinosa* Pfr., P. Z. S., 1871, p. 473; = *adusta* Garr. MS.; = *bicolor* Garr. MS., Huaheine (Garr.); = *simplaria* Morelet?, Journ. de Conch., 1853, p. 370, Pl. 11, Figs. 13-14. Tahiti. (*P. simplaria* Morelet has been referred to *P. rosca* Brod., H. H. S.)

108. *P. virginea* Pse. MS. Tahaa (Garr.).

109. †*P. vanikorensis* Quoy et Gaim. Voy. Astrol., Vol. 2, p. 115, Pl. 9, Figs. 12-17. Vanikoro (Quoy and Gaim.).

110. *P. vexillum* Pse., Amer. Journ. Conch., 1866, p. 198; 1867, p. 81, Pl. 1, Fig. 18 (= *suturalis* Pfr., H. H. S.). Moorea (Garrett).

111. *P. vittata* Pse., Amer. Journ. Conch., 1866, p. 194. (Probably Garrett's shells were *radiata* Pse. var., non *vittata* Pse., H. H. S.). Raiatea (Garr.).

112. *P. zebrina* Gld., Proc. Bost. Soc., 1848, p. 196; = *recluziana* Petit, Journ. de Conch., 1850, p. 170, Pl. 7, Fig. 5. Tutuila (Gould) Upolu (Garr.). (= *expansa* Pse., Upolu; non *zebrina* Gld., which = *actor* Albers, from Tutuila; H. H. S.).

113. *P. mucida* Pfr., P. Z. S., 1855, p. 98. Pacific Islands (= *varia* Brod., Huaheine, H. H. S.).

114. *Partula* sp. Dominique, Marquesas (Garr.).

115. *Partula* sp. Magdelina, Marquesas (Garr.). (*P. magdelinae* Hartm., described from specimens sent by Garrett; H. H. S.)

116. *Partula* sp. Woapo, Marquesas (Garr.). (*P. bellula* Hartm.? H. H. S.)

117. *Partula* sp. Moorea (Garr.). (Probably *P. mooreana* Hartm., H. H. S.).

118. *Partula sinistrorsa* Pse. MS. (= *P. otaheitana* Brug. var., H. H. S.). Tahiti (Garr.).

119. *P. subangulata* Pse., P. Z. S., 1871, p. 458 (= *P. faba* Mart. var., H. H. S.). Tahaa, Garr.

The following extracts from the Garrett letters have a general interest in connection with the genus *Partula*:

November 28, 1878: "Following is a list of all the ground species (probably of the Society Islands only, H. H. S.): *approximata*, *pinguis* (= *rustica* Pse.), *planilabrum*, *producta*, *navigatoria*, *fusca*, *lugubris*, *vittata*, *ovalis* (= *lugubris* var.?), *compressa* (= *radiata* Garr.), *rustica* and *crassilabris*. All the others are strictly arboreal. The ground species are only found on Tahiti, Raiatea and Tahaa."

Feb. 10, 1879: "After eliminating the well-marked Tahitian species, such as *P. alternata*, *clara*, *hyalina*, *trilineata*, *lineolata* and *producta* from the other species of that island, we have left a very difficult group to study. These include *otaheitana*, *lignaria*, *amabilis*, *rubescens*, etc. They have not the same specific value as those mentioned above. All the former are not connected with each other, or with the latter group, by intermediate forms. With the exception of *producta*, which is a ground species, all the others are arboreal.

Whether the *otaheitana* group includes one or several species will, in my opinion, always remain an open question, for the simple reason that nearly all conchologists disagree more or less in what constitutes a good species. I am not quite satisfied with my own conclusions in regard to some of the species, and in order to clear up doubts it will be necessary to revisit certain localities."

May 8, 1879: "If you adopt my names and localities (for Pease's species) you will have them correct. At least they ought to be, as I collected all Mr. Pease's species as well as named them. Of course, you will use your own judgment in reducing the number of species. I agree with you that some of the species are simply varieties and many synonyms."

March 15, 1882: "There is a good deal of doubt (in the genus *Partula*) in consequence of the uncertainty of the true types, which in some cases cannot be relied on as represented in the British Museum. With regard to Cuming's localities (who collected in this group some forty-five years ago), it really seems as if he intentionally gave the

wrong habitats of some of the shells collected by himself, or marked them 'hab.?' in order to mislead the monographers and make as many species as possible. He did not appear to care so much about shells in a scientific point of view as to possess the largest collection in the world. Nothing vexed him so much as having any one doubt the validity of any of *his* new species, which he selected, generally three of each, from his stock of duplicates. He was also in the habit of changing the author's types whenever he obtained what he supposed to be better specimens. No doubt in most cases he was right in replacing the same species. Still, they were not the author's types."

Under the same date Garrett quotes a letter from Pease, written Apr. 21, 1870. "'I shall close up my monograph of *Partula* as soon as I receive another consignment from Australia, by which I shall receive several species from New Hebrides and Solomon Islands I am desirous of seeing. I make out ninety-four species, of which the localities of eighty are known, viz., fifty-nine Polynesia and twenty-one Papuan. * * * I have divided the several species into typical groups and given their range of distribution and variation. You have credit over your initials for your notes, and sometimes a little more.'" Mr. Garrett adds: "I wrote to a friend in the Sandwich Islands, shortly after Pease's death, to try and get the MSS. They could not be got. I suppose they were sold with his splendid library."

Oct. 10, 1882: "With regard to Polynesian land shells I have seen nothing to convince me that food has anything to do with the color of the shell. *P. rosea* and *varia*, which are the most variable in color, may in some localities be seen in countless numbers on different species of shrubs and ferns, old and young of the different colored varieties on the same plant. The same may be said of all the species, ground as well as arboreal."

Feb. 12, 1883: "Long ago I wrote you in regard to the confusion of Pease's duplicates, caused by the hurried packing by persons who knew nothing of the importance of keeping the duplicates separate. * * * Pease himself was very careless, and his children, as he wrote me, amused themselves 'sorting his duplicates,' which were in cigar boxes."

Nov. 25, 1883: "I am inclined to believe that many species which are really distinct—especially in the land-shells—gradually merge into each other, just as some genera intergrade."

Jan. 25, 1875. "When I explored the islands for *Partula*, I kept a daily journal and gave each species, when discovered, a provisional name, and kept the species from each valley separate. After I sold the collection to Mr. Pease I put up nine sets for him to send to London. He adopted nearly all my provisional names. Carpenter, Adams and Cuming compared the shells with those in the Cumingian collection, and the former published the result of their determinations in the Proc. Zool. Soc., 1864. I reserved a similar set for myself of all except five or six species of which there were no duplicates left after Pease made his selection for his cabinet. Ten years after my first explorations I went over the same localities a second time, so I certainly am pretty well posted on the Partulas of this group.

"Pease was very careless about localities, as any one can see by studying his papers. He was also careless about his duplicates, which he kept in cigar-boxes; and, as he once wrote me, his 'little daughter amused herself in arranging (?) his duplicates.' After his death, those who packed his collection to be sent to Boston must have made sad confusion by the admixture of species."

The last letter from Mr. Garrett is dated June 26, 1887, and in it he writes most bravely and touchingly of his own approaching death. "For some time I have been unable to work on my collection, which numbers over 8,000 species and 30,000 examples. It is hard to give them up and join the large majority. I am too weak to write much, so I will thank you over and over again for your kindness to me. I have made arrangements so that you will receive my three papers, now in the hands of the printers. I also hope, before the end comes, to receive yours on the *Achatinellæ*."

Mr. Garrett died of cancer, at Huaheine, Nov. 1, 1887. With the papers there is a sketch of his life with a list of his writings, by Rev. E. V. Cooper, of Huaheine, "communicated at the special request of Mr. Garrett before his decease."